Sales Coach Useful In Closing Sales of G-E Appliances

SAN FRANCISCO—Use of a sales coach as a tool in promoting a spring sales campaign brought outstanding results to the Electric Appliances, Inc., General Electric distributor here, who last year sold 23 refrigerators, three ranges, three dishwashers, and 15 home laundry appliances during a 60-day period in which the coach was taken through the territory.

Early in the spring the coach was redecorated. Then P. E. Cole, the driver-salesman went prospect-getting in San Francisco, and in outside dealer territory. Approximately 8,000 persons visited the coach during its two-month run.

Besides direct sales made from the coach, through its use 18 refrigerators, one dishwasher, and 11 laundry appliances were placed on trial, plans for two kitchens were drawn up, and 22 live prospect names were secured.

R. Grosjean, advertising and sales promotion manager for Electric Appliances, states that not only were the company's profits increased through use of the coach, but it also was a means of building dealer good-will.

Data on Air Conditioning & Refrigeration Given in Home Owner's Guide

NEW YORK CITY—Of interest to many in the fields of mechanical refrigeration and air conditioning is the recently-published "Home Owner's Hand Book," edited by C. B. Smith, a former member of the staff of the *New York Evening World*.

The book is designed as a guide to the repair or remodeling of an old home, or the construction of a new one. It covers the house from basement to roof, dealing simply, but thoroughly, with all parts of the home. "Before and after" photographs are used, in many cases, to show the improvements which modernization can accomplish in various parts of the house.

"The Importance of Refrigeration" is the title of a section of the book which deals with "The Efficient Kitchen."

"In the up-to-date home, the preservation of food supplies comes second only in importance to its cooking," the editor points out here.

Proper insulation, states the book, is a point which no buyer of a refrigerator can afford to overlook. "Minimum requirements in this respect are that the bottom insulation be three inches in thickness, and that on the walls 1½ inches thick, exclusive of the material enclosing it."

"Points in buying a refrigerator," mentioned in addition to insulation, are:

"That it shall be reliable in operation, so far as the motor is concerned.

"That it shall be as nearly noiseless as possible in operation.

"That its adjustment to desired temperature ranges shall be easy.

"That the system of defrosting shall be simple and efficient, and not complicated, so far as the resumption of cooling is concerned.

"That the inside walls may be easily cleaned."

Electric, gas, and kerosene operated refrigerators are included in the discussion in this section.

Air conditioning is covered in another chapter of the publication.

"The completely air-conditioned house must be built upon plans which take air conditioning into consideration from their inception, but a high degree of comfort based upon the regulation of humidity and provision for summer cooling may be achieved with existing equipment, by minor changes in the heating plant and the installation of lately invented devices, which . . . will supply and circulate clean, humidified. heated air in winter, and clean, dehumidified, cooled air in summer," it is pointed out.

The whole theory of air conditioning, the book states, is based upon the necessity of a regulated degree of moisture in the air to the comfort of the human body.

"Careful studies in college laboratories . . . brought out the fact that 66 to 68 degrees of heat afforded a condition of average comfort, when the relative humidity in the air ranged between 40 and 60 per cent."

Humidifying and dehumidifying devices are explained in this section, and the importance of the latter to summer comfort is stressed. The use of air-conditioning equipment in combination with heating equipment is told; and the "split" system, importance of controls, and cooling by ventilation are explained.

Names and brief specifications of standard products are listed in columns adjoining the various sections, together with the names and addresses of manufacturers, for the home owner's guidance in making improvements in any part of his house.

Knoxville Utility Makes Colored Servants Boosters For Appliances with Cooking Schools

KNOXVILLE, Tenn. — Combating the negro cook's prejudice against electric labor-saving devices, a colored cooking school, operated by Tennessee Public Service Co. has made electric service boosters of many domestic servants, the company reports.

Before the inception of the school, negroes felt that the purchase of electric equipment by their "white folks" would jeopardize their jobs by taking their places.

Under the direction of Miss Jewell Taylor, head of the home service department of the utility, and herself a native southerner, the electric kitchen was established on the car line near the downtown district on a side street where negroes trade. Because the kitchen serves as a colored community center, and gives valuable vocational training to the women, the colored Y.W.C.A. is enthusiastic about cooperating, Miss Taylor says.

A progressive colored hostess, Emma Watson, on the payroll of Tennessee Public Service Co., arranges the schedule for the meetings of clubs and civic welfare groups at times when the electrical appliance school is not in session.

Formerly a teacher herself, and now the wife of an instructor in the Knoxville schools, Mrs. Watson has enlisted the interest of progressive negro educators in this movement.

Recently a group from Fiske University at Nashville, one of the south's leading colored colleges, was entertained at the kitchen, and pronounced it one of the greatest educational movements of the south.

No educational prerequisite is required for entrance to the course, which runs six weeks. The same lesson is offered several times a week so that all may attend at one time or another. Tuesday afternoons and evenings, Miss Taylor says, are the most popular because maids are usually free then.

Miss Taylor and her assistants do all the teaching. Samples of the food prepared in the kitchen are given the pupils and serve as an incentive for the maids to try out new dishes for their own families.

"Diplomas" given at the conclusion of the course assure future employers that the bearers are familiar with the operation of electrical apparatus. An impressive gold seal on the certificate carries an embossed design of an electric stove, with raised letters around it reading: "Tennessee Public Service Co.—Homemakers Award."

The students take great pride in "graduation," and invite their friends and employers to attend. Any additional attendance after graduation is rewarded by a star placed on the diploma for every additional six weeks of study.

Mimeographed recipes distributed by the school provide each pupil with permanent recipes for practical use. Care is exercised in not giving too many points in one lesson, because Miss Taylor believes that one or two principles, well instilled, constitute better training than a multitude of confused ideas.

The company has found that maids who are sufficiently ambitious to attend the school are in demand, for each member learns not only how to use electrical appliances, but gains new standards of cleanliness, sanitation, and efficiency as well.

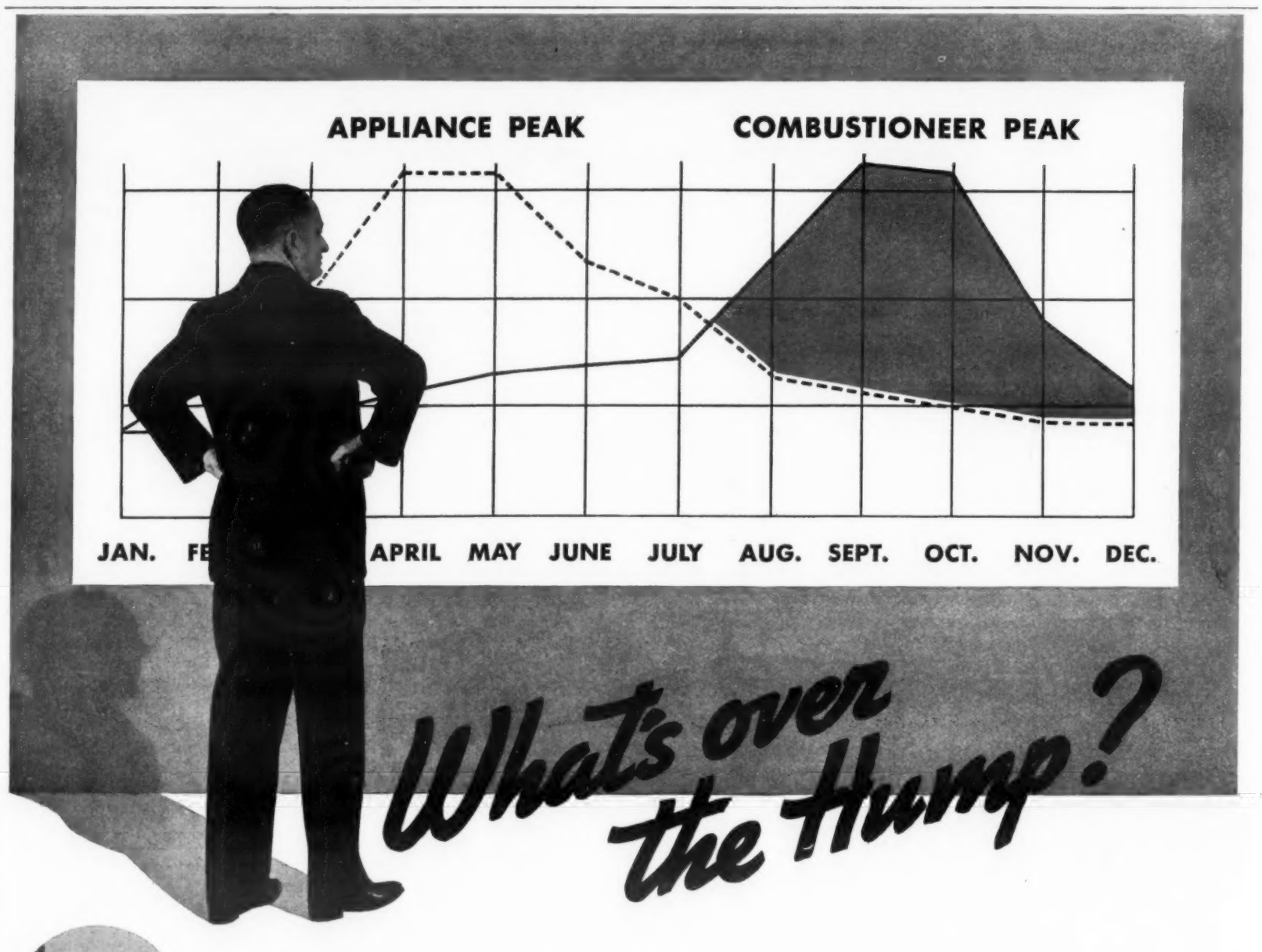
Free instructions on the operation of any electrical appliance is another benefit which "graduates" and employers may get from the diploma. A courtesy recipe service also entitles the cook so trained to call upon the utility for new recipes or questions as to the "why" of culinary failures.

In the kitchen, a water heater, electric stove, electric refrigerator, and modern sink are supplemented by numerous smaller appliances such as toasters, percolators, waffle irons, sandwich toatsters, and similar equipment. The equipment is furnished by Graybar Electric Co.

Demands for more electrical apparatus has not been confined to the employer, however, for the company reports that these "school-trained" servants look forward to modernizing their own homes. Progressive colored people, such as ministers, doctors, lawyers, and teachers, after a visit to the kitchen, also find themselves dissatisfied with their old-fashioned tools. Homes that have never had electric lights are often wired for service for a stove or refrigerator after some member of the household has taken the course or visited the kitchen, the company reports.

Having outgrown its old quarters, this unique school is moving soon to a new location near the colored college of Knoxville.

For the vocational training thus given, Tennessee Public Service Co. gets its return in the number of "electrical saleswomen" produced by the school, and the consequent increase in power sold. Graduates of the school "sell" not only their employers, but their friends and neighbors as well.



If you are selling major appliances this is a good time to ask yourself what lies beyond the hump of present peak sales. But whatever you sell you can't afford to ignore the fact that summer and fall are the top seasons for big profits with Combustioneer Automatic Coal Burners. Right now is the time to play Combustioneer across the board and WIN a ready-to-buy market . . . PLACE your business on an all year basis . . . SHOW twice as much profit per volume as any other product you ever sold. Let us tell you the true and typical story of a dealer whose generous profit on Combustioneer sales offsets his losses on three times the volume of other appliances. Let us give you the facts about a franchise that's paying immediate and consistent dividends to all types of merchandising and specialty selling outlets. These facts are yours for a three-cent stamp. Write Combustioneer, Division of The Steel Products Engineering Company, Springfield, Ohio.

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AUTOMATIC COAL BURNER

Combustioneer, Springfield, Ohio. - - - - - - - - - - - - I want the facts about your franchise.
Name_____ Address_____

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

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52,280 Units of Norge Products Shipped in April

Refrigerator Sales 12% Better Than Any Previous Month

DETROIT—Setting a new record, Norge refrigerator sales were 12% greater during April than the best previous month in the company's history (March, 1936,) and 39.5% greater than April of last year, reports Howard E. Blood, president of Norge division, Borg-Warner Corp.

An all-product volume of 58,280 units for April also surpassed all other records with a 41.7% increase over the corresponding month last year. Sales for the first four months of 1936 totaled 193,870 units, a gain of 62.1% over the corresponding period of 1935.

Increases in appliance sales last month over the corresponding month of 1935 also included 149.5% increase for washer sales, 842.5% for gas range sales, and 146.8% for electric range sales. Unit volume for ironer sales for the month represents a quarter of total washer unit sales, Mr. Blood stated.

With government authorities predicting 6,000,000 new homes to be built in the next 10 years, all appliance markets should be sustained in a healthy position, Mr. Blood said. "No small consideration is the increase in residential construction now, which is up 74% for the first quarter."

Although Norge factories are working at full production 24 hours a day, according to Mr. Blood, April closed with heavy numbers of unfilled orders for refrigerators, washers, ironers, and ranges.

Nema Refrigeration Division to Meet This Weekend

HOT SPRINGS, Va.—Members of the Refrigeration Division of National Electrical Manufacturers Association, both household and commercial, will hold their spring meetings during the annual spring conference of Nema, to be held at the Homestead here May 17 to 22.

Meetings of the refrigeration groups are scheduled for the first two days of the conference. Household Refrigeration Section meeting will be held at 9 a.m. on Sunday, May 17, and will be followed, at noon, by the meeting of the Refrigeration Division.

Meeting of the Commercial Refrigeration Section is set for 2 p.m. Monday, May 18.

Members of Refrigerating Machinery Association and Air Conditioning Manufacturers Association will meet at the Homestead on Thursday, Friday, and Saturday of this week. RMA meetings will be held on all three days; ACMA on Saturday only.

Speakers at the open meetings, in addition to President Frank C. Jones, include C. E. Swartzbaugh, chairman of Nema's Business Development Committee; Whiting Williams, industrial relations counselor; Thomas McFadden of Donovan, Leisure, Newton & Lumbard; and Francis E. Neagle, counsel to Nema.

Executive Committee to Manage McCray

KENDALLVILLE, Ind.—An executive committee comprised of E. E. McCray, chairman, R. E. Davis, vice chairman, J. W. Hart, secretary, R. J. Rehwinkel, member, and G. J. Hopkins, member, is now administering the business of McCray Refrigerator Sales Corp., according to an announcement made the first of this month.

New executive appointments announced at the same time are: R. J. Rehwinkel, general sales manager; H. W. Ziebell, sales promotion manager; V. C. Knight, assistant sales manager of mechanical refrigeration; C. H. Ziebell, chief sales correspondent; M. A. Drumheller, sales statistician; A. P. Gilliland, assistant treasurer; G. K. Bently, assistant refrigeration engineer; W. G. Mains, assistant factory manager; C. A. Whitney, chief inspector.

Berger Is Named Crosley General Sales Manager

CINCINNATI—Thomas W. Berger was appointed sales manager of Crosley Radio Corp., succeeding Howard E. Richardson, according to an announcement made last week by Powel Crosley, Jr., president of the company.

Mr. Berger has had considerable experience in both the manufacturing and distribution of electrical appliances. For a time he was sales manager of the Vacuum Cleaner Co. of Cleveland, and later he entered the appliance distributing field in Philadelphia, and was for seven years manager of the appliance division of the Philadelphia Electric Co.

He had been president of the Prima Mfg. Co. of Sidney, Ohio, manufacturer of home laundry equipment, before joining Crosley.

Bowe Will Head Up Carrier Advertising

NEWARK, N. J.—Walter A Bowe, formerly advertising manager of General Electric's air-conditioning department, and assistant manager of that company's "New American" program, has joined Carrier Engineering Corp. as manager of advertising and sales promotion, reports L. R. Boulware, vice president and general manager of Carrier.

Mr. Bowe is assisting in the reception to the Q.S.T.S. Queen Mary, which is air conditioned by Carrier.

ASRE Representatives for Power Conference Named

NEW YORK CITY—William S. Shipley, president of the York Ice Machinery Corp., and George W. Mason, president of Kelvinator Corp., have been appointed to represent the American Society of Refrigerating Engineers at the Third Plenary World Power Conference to be held in Washington, D. C., Sept. 7-12, L. S. Morse, A.S.R.E. president, announced recently.

Organized in 1924, the World Power Conference is a federation of national committees and representatives of approximately 50 countries, which meets to consider how the sources of heat and power may be adjusted nationally and internationally. Previous sessions were held in London in 1924, and in Berlin in 1930.

Grunow Distributor for Atlanta Appointed

ATLANTA—National Products Distributing Co. was recently appointed distributor of Grunow refrigerators and radios in northern and southeastern Georgia, reports E. M. Sturhahn, president of the distributorship.

Manufacture of Airtemp Units Goes to Dayton

Chrysler Equips Plant for Manufacture of Air Conditioners

DETROIT—Manufacture of Airtemp air-conditioning equipment is to be concentrated in Dayton, Ohio, according to an announcement made last week by officials of Airtemp, Inc., subsidiary of Chrysler Corp.

The Dayton plant is one which Chrysler has owned for some time, but in which there has been no manufacturing operation for the past few years. It is now being remodeled for use by Airtemp, and new machinery is being installed.

Officials expect production at the Dayton plant to get underway sometime in June. The plant, which is a one-story structure, provides more than 200,000 sq. ft. of floor space, and stands on a 29-acre plot of ground.

General executive and sales offices of Airtemp, Inc., are to be located at the Dayton plant. These new general offices will be completely air conditioned, factory officials state.

While the bulk of the manufacturing will be done at Dayton, it is probable that some production operations will be continued in Detroit, at least for a while.

Production of Airtemp products has been carried out at one of the Dodge plants here, but increased demand made imperative an expansion of manufacturing facilities, claim Airtemp officials.

Lipman Builds New Line of Small-Sized Ammonia Machines

BELOIT, Wis.—General Refrigeration Sales Co. has recently put on the market a new line of Lipman water-cooled ammonia compressors in 1, 1½, 2, and 3-hp. sizes, replacing the line of ammonia units which the company formerly manufactured.

Compactness and efficiency are features of the new machines, which are said to be equal, in these qualities, to standard methyl chloride machines of the same capacity. In addition, the units are lower in price and higher in efficiency than earlier ammonia models.

Compressors of the new models have a water dome, and the cylinder head is water cooled. Suction strainer has been made accessible from the outside, and is said to be larger than on methyl machines. Water valve and high-pressure cut-out are mounted to the machine.

Ammonia connections are made when the units are manufactured, but

(*Concluded on Page 4, Column 1*)

Kansas City Group Adopts New Rules; March Sales Up

KANSAS CITY—Sales of household electric refrigerators in this city during the first three months of 1936 were 17% less than those made during the corresponding period of 1935—with 4,549 unit sales as against 5,514, according to reports compiled by G. W. Weston, secretary-manager of the Electric & Radio Association of Kansas City.

The 1936 first quarter sales figures however, are 20% greater than those for that period in 1934, in which year the highest annual sales total is reported. In the first three months of 1934 3,773 units were sold.

Comparing individual monthly figures, March, with 2,809 sales, was the best sales month (for the quarter) in Kansas City during the three-year period. March sales for 1935 and 1934, respectively, were 2,806 and 1,943 units.

To stabilize merchandising conditions and eliminate unfair competitive practices, electric refrigeration dealers and distributors in this territory are working under a "Cooperative Plan" in which standardized restrictions govern certain sales practices.

Under the dealer's Cooperative Plan, the following table of ice-box trade-in allowances is set up: $2.50 when the electric refrigerator purchased sells for less than $140; $5 on boxes with retail prices of from $140 to $200; $7.50 on $200 to $250 purchases; and $10 on refrigerators selling for $250 or more.

Stipulations of the Cooperative Plan rule out the payment of discounts of any kind to domestic refrigerator users. Salesmen are also prohibited from sharing commissions with a customer, or from making any part of the down payment for the customer in order to close a sale.

Provisions which apply to the distributors under this plan include: an agreement not to give salesmen cash, merchandise, or trips as a means of inducing favor to their own line where it is handled by a multiple-dealer; to restrict consignments to an absolute minimum; to abide by the plan worked out by the manufactures in regard to "spiffs," and other forms of contests; and to exert all efforts to prevent violations of the dealer plan.

958 Household Units Are Sold in First 2 Weeks of Georgia Power Drive

ATLANTA—During the first two weeks of the Georgia Power Co.'s spring refrigeration drive, 80% of the quota set for the entire campaign was reached with the sale of 958 household electric refrigerators. Total quota set for the campaign, held from March 23 to April 27, was 1,200 units.

COMING—MAY 20—NEXT WEEK

AIR CONDITIONING SPECIFICATIONS

Specifications of current models of air-conditioning equipment which include a cooling function will be published in the May 20 issue of the NEWS.

Manufacturers have been asked to supply data for four general classifications of equipment: (1) self-contained floor type conditioners; (2) floor-type conditioners with remote compressor; (3) suspended-type conditioners; (4) duct-type or "central station" air-conditioning equipment.

The specifications data will provide information on the functions performed by the units, and will offer pertinent information on the make and construction of the condensing unit, cabinet, cooling and heating surface, blower, humidifier, air-cleaning apparatus, and controls.

Capacities of the units in terms of cooling, dehumidifying, heating, and humidifying, will be given under the ratings approved last year by trade and engineering association. Extra copies of the May 20 issue will cost 25 cents each.

ASRE Program Is Drafted for Skytop Meeting

Food Refrigeration, Thermal Problems Scheduled; To Meet with ASHVE

NEW YORK CITY—New developments in the refrigeration of foods and in thermal problems will occupy the attention of members of American Society of Refrigerating Engineers at their twenty-second spring meeting, to be held at Skytop Club, Skytop, Pa., June 22 to 24.

A joint session with members of American Society of Heating & Ventilating Engineers, meeting concurrently at nearby Buck Hill Falls, Pa., will be devoted to air-conditioning engineering.

First of the A.S.R.E. technical sessions, to be held in the recreation hall of the Skytop Club on the morning of June 22, will be presided over by President L. S. Morse. Topic of the session will be "The Refrigeration of Foods."

J. E. Nicholas, associate professor of agricultural engineering at Pennsylvania State College, will speak on "The Farmer's Egg Pre-Cooling Problem"; S. Ruppricht, New York City consulting engineer, on "Defrosting"; Walter Jones of Carrier Engineering Corp.'s New York City office on "Application of Refrigeration to Brewery Stock Rooms"; and D. B. Finn of the Biological Board of Canada, Halifax, N. S., on "A Review of Fish Refrigeration Methods."

Air conditioning will occupy the center of attention during the jointly arranged A.S.R.E.-A.S.H.V.E. meeting at The Inn, Buck Hill Falls, on the morning of June 23. Willis H. Carrier, chairman of the board of Carrier Engineering Corp., and a past president of both societies, will preside at the session.

Topics scheduled for discussion at this meeting include:

"Theory and Practice of the Heat Pump," by C. W. Chamberlain, Michigan State College, Lansing, Mich.;

(*Concluded on Page 4, Column 3*)

3 Compartment Design Features Jewett's One Model Line

BUFFALO—Jewett Refrigerator Co., Inc., is limiting its line of household electric refrigerators for 1936 to one size, the model 80, a unit of 8-cu. ft. capacity. Now being produced in limited quantities, the model will be available for delivery the first week in June.

Design of the refrigerator, according to President Edgar B. Jewett, has been under development for the past two years, and is unique in that it is arranged with an upper chilled humidified space, or hydrator, bottom part of which forms the top of the evaporator.

This upper space, comprising 2 cu. ft. of net storage space, is intended for the storage of fruits and vegetables, to preserve their crispness.

Cold from the evaporator, which has a temperature of 10° F., is conducted around the porcelain upper compartment, maintaining a temperature in it of 45° F., when the room temperature is around 90° F. Since there is no air movement in the upper compartment, there is little or no dehydration.

A comparison of loss through dehydration of food stored in the two compartments showed the upper compartment to be almost 40% more efficient in this respect. After 10 days storage in the humidified compartment, lettuce showed a loss by dehydration of 4%, while in the regular compartment it showed a loss of 27%.

Comparative figures on other vegetables were: cauliflower, humidified compartment, 4½%; regular compartment, 27½%; celery, 2% against 63%; parsley, 2% against 44%; and endive, 1½% against 40%.

Evaporator is flat in design, covering the entire top of the regular compartment. It is fitted with seven ice trays, one of them all-rubber, and a deep dessert tray, and has a capacity

(*Concluded on Page 4, Column 5*)

TVA Questionnaire Shows Refrigerator To Be Desired Most

KNOXVILLE, Tenn.—Proof of the almost universal desire for modern electrified conditions, and of the preference for electric refrigerators above all other appliances was found in a recent survey conducted by the Tennessee Valley Authority among the residents of the TVA electrified villages at Norris, and Pickwick Landing Dams, reports David E. Lilienthal, TVA director.

Questionnaires were sent to 216 homes with complete electric equipment including refrigerator, range, water heater, and heating. Residents were asked to list the equipment they would use if they should some day build new homes in areas where electricity is available at TVA rates.

Of the 186 replies received, 99% indicated that they would install electric refrigerators, 94% electric ranges, 97% electric water heaters, and 80% electric space heaters.

"These replies," Mr. Lilienthal said, "come from average valley residents with moderate income. They offer striking proof of the almost universal desire for modern, electrified living conditions, which can and will be met with continued reduction in the cost of electricity and electric equipment."

Average income of the families reported was approximately $1,700 per year, and rentals ranged from $18 to $65 a month.

TVA residents were also asked to list the order in which they would purchase appliances, assuming that they could afford to purchase only one item at a time. In both villages, residents indicated exactly the same order: electric refrigerator, range, water heater, and space heater.

Here's How!

to make NEW profits

● Do you know about this new, nationally-advertised, major household appliance? It is going to be the next great money-maker for you. *Every woman will want one for her home.*

● Sales arguments? The best there are! Water conditioning is an aid to beauty, health and cleanliness—a time saver, a labor saver, and a money saver. You can prove these points right in the prospect's home by using a handsome, light-weight, chromium-plated demonstrator.

● Permutit sales are year 'round. No slack season like refrigerators and oil burners. Financed under FHA terms; no down payments. Permutit fits in with your present selling methods and answers a real need.

DISTRIBUTORS—a number of good territories are still open. 100% cooperation to help you obtain dealers and make sales. Local cooperative advertising, forceful campaigns, and free sales training courses. We'll gladly tell you how well-known distributors are cashing in on this new home appliance.

THE PERMUTIT COMPANY
Room 723, 330 W. 42nd St., New York City

Please send me, without obligation, complete details of your merchandising plan and money-making proposition.

Company .....
Address ..... City .....
Signed by .....

3-Compartment Model

Jewett's 1936 refrigerator is featured by a separate upper compartment for humidified fruit and vegetable storage.

Construction Will Start Soon on Cleveland '36 New American Homes

CLEVELAND—With the launching of General Electric's "New American" home building activity in the Cleveland territory, construction is expected to start shortly on some of the new demonstration homes, which will be equipped with G-E home appliances throughout, reports A. F. Head, president of Electrical Housekeeping, Inc., G-E distributor, and chairman of the local activity.

Assisting Mr. Head is Aaron Kosser, of the distributing firm, who is vice-chairman of the Cleveland committee.

Other members of the local committee are: E. G. Stevens, secretary of the Cleveland Real Estate Board; A. C. Robinson, president of the local chapter of the American Institute of Architects; Paul H. Dow, of G-E, Nela Park; Fred J. Bollmeyer, of Maxon, Inc., advertising agency; James McCaffrey, of FHA; S. D. Hopper, of G-E Supply Corp.; James Monnett, Jr., of the *Cleveland Plain Dealer;* C. V. Talbott, of the *Cleveland News;* and Milton Widder, of the *Cleveland Press.*

The "New American" home activity is designed, says C. M. Snyder, manager of the G-E home bureau in New York, to give a practical demonstration of what is new in home planning, materials and equipment to meet modern living conditions.

This year, the program in the Cleveland territory will be exclusively with builders.

Air conditioned and wired by G-E, the homes will also have electric laundries, and complete G-E kitchens, including refrigerator, dishwasher, and kitchen disposal unit.

In addition to modern electrical equipment, Mr. Snyder states that the new home concept includes a minimum of waste space, wall space arranged for maximum utility, seasonal outdoor living on terraces extending from rooms, better light and visibility, a dining room usable for 16 hours a day, easy-to-get-at garage at the front or side, with no lot space wasted, and a recreation room combining utility and pleasure.

Arkansas Dealer Sends 'Summons' to Prospects

HOT SPRINGS, Ark.—Wilson Furniture Co., Norge dealer, has resorted to a "legal" ruse to bring likely prospects into its showrooms for a look at new refrigerator models.

The company sent out an official-looking "summons," with the prospect's name imprinted on it. Printed on the inside fold of the "document" was the following message:

"Inasmuch as the United States Government states that in Hot Springs, Arkansas, there are only 14 days out of the year that will keep food (temperatures below 50° and above 32°);

"Inasmuch as the average family spends more money for food than any other single item of expense;

"Inasmuch as the proper preservation of food is more important than shelter or clothing;

"Inasmuch as we believe there is only one way to properly safeguard the above;

"The Wilson Furniture Co. at 805 Hobson Ave., not only summons you, but begs of you to appear at our store, and be convicted that we have the refrigerator that is bringing health and happiness to thousands of homes, which you can purchase with the same money you are now spending.

"Your appearance with this summons at the above address will entitle you to some special favor."

Trundle Engineering To Advise Grunow on Management of Plant

CHICAGO—General Household Utilities Co., manufacturer of Grunow electric refrigerators and radios, has retained the Trundle Engineering Co. of Cleveland as management engineers in connection with the operation of their plants at Chicago and Marion, Ind., company officials announced last week.

The Trundle staff will take an active part in the production, budgeting, engineering, and general operations of the company, according to George T. Trundle, Jr., president.

Officials of the General Household Utilities Co. are at present engaged in a country-wide tour of divisional cities where sales conventions will be held prior to introduction of the new 1937 radio models in June.

More than 200 radio and refrigerator dealers from the northern Ohio territory attended the opening meeting of the tour last week at Cleveland. A G. Messick, director of General Household Utilities Co.; H. J. Shartle, general sales manager; Dr. J. D. Jordan, director of research development; Tod Reed, advertising manager; and J. J. Davin, Sr., sales promotion manager, were factory officials present at the Cleveland conclave.

M & M Co. Celebrates Entry Into Field

CLEVELAND—M & M Co., new Grunow distributor in the Cleveland territory, formally celebrated its entry into the refrigeration field with a meeting and banquet for its 240 dealers at 6:30 p.m. Monday, May 4, in Hotel Cleveland. Arrangements for the affair were under the direction of Harry Welfare, sales manager.

M & M is a new company in refrigeration, having taken over the Grunow distributorship about three months ago, when it was relinquished by Arnold Wholesale Co., of which Frank Arnold is head. Mr. Welfare, Arnold's refrigeration sales manager for three years, joined M & M when it took over the Grunow franchise.

The company, with headquarters here, has branch offices in Lima, Youngstown, and Canton. Now located at 500 Prospect Ave., the company has leased complete new quarters in the 5200 block on the same street, where showroom and display facilities are better than in the present building. Officials hope to be in their new location before the end of the month.

Salesmen Given Floor Time In Proportion to Sales Made Outside

NEW ORLEANS — To convince salesmen of the value of outside selling effort, not only to the store, but to themselves in terms of increased income, Barnett Furniture Co., Norge dealer here, has put into effect a "Business Bull Pen," with floor assignments dependent upon sales outside the store.

The store operates a crew of seven men. Mr. Tejillo, manager of the appliance department, constructed a "Bull Pen" board for each man, the boards being detachable from the main board. The main board, however, has room for but six "man" boards—one for every week-day.

Assignment to the floor is made by grading the men on their outside work. As the men qualify for floor days, their name boards are put up on the main board, alongside the day their assignment covers.

The low man in outside sales loses his floor privilege for the following week, his name board going into the "Bull Pen" (a large space at the bottom of the regular board). High man for each week, counting only outside sales, gets an extra floor day.

Mr. Tejillo reports a notable increase in outside business since the plan was put into effect.

Sikes Sells 25 Leonards in First 15 Days of April

WAYCROSS, Ga.—Selling 25 refrigerators during the first 15 days of April established a new sales record for the Sikes Battery Service, Leonard dealer here.

The company received a carload of refrigerators the last week in March. To get the new stock moving, a sales demonstration was held in the display rooms, located in the town's main section, to which local housewives and those from nearby rural districts were invited. Two salesmen outlined the features of the new line, and the dealer explained credit terms by which the refrigerators could be purchased. Terms included 15 cents a day sales plans, and special trade-in allowances.

Selling By the "Stars"

Fairbanks-Morse Advertising Manager W. R. Ceperly pastes up the price "star" in F-M's "15 Star" demonstration book, designed to dramatize sales features of this year's models, as General Manager W. Paul Jones looks on.

Economist Believes Replacement Business Will Soon Exceed New Refrigerator Sales

DETROIT—"The time may not be far distant when the refrigerator replacement business will exceed new installations, just as for years, replacements have exceeded new sales in the automobile business," is the prophecy of Dr. Warren M. Persons, former Harvard professor of economics, prominent statistician and member of the advisory committee of the Temperature Research Foundation of Kelvinator Corp., in a recent brochure published by the foundation.

"The refrigeration business has reached the stage where replacements are assuming a larger proportion of annual sales, because improvements have made early models obsolete, and because home owners often find it economical to turn in old models as part payment against new models, or even to scrap the old models," he says.

Under the title, "An Economist's Appraisal of Domestic Refrigeration," Dr. Persons tells the story of the rise of electric refrigeration.

He predicts that in spite of lower energy consumption by the newer models, increased total consumption by electric refrigerators may be expected to be continued.

"The past five years," Dr. Persons says, "have witnessed the successful commercialization of electric refrigeration," with the result that, according to his figures, refrigerators now top all other electric appliances in aggregate value of sales.

A corresponding rise in consumption of electric current by refrigerators, he maintained, was the chief reason why domestic current consumption did not fall during the depression.

One family in every three homes wired for electricity now has an electric refrigerator, he said. Meanwhile, not only have the prices of refrigerators been cut about one-half in six or eight years, but the cost per kilowatt hour is frequently less.

Although the task of educating the public as to the convenience, efficiency, and economy of an electric refrigerator still remains, manufacturers can now rely on seven million domestic users to illustrate their point, he said.

PRECISION Means *Superior* PERFORMANCE

COPELAND MANUFACTURING STANDARDS MAKE SURE YOU WILL GET IT!

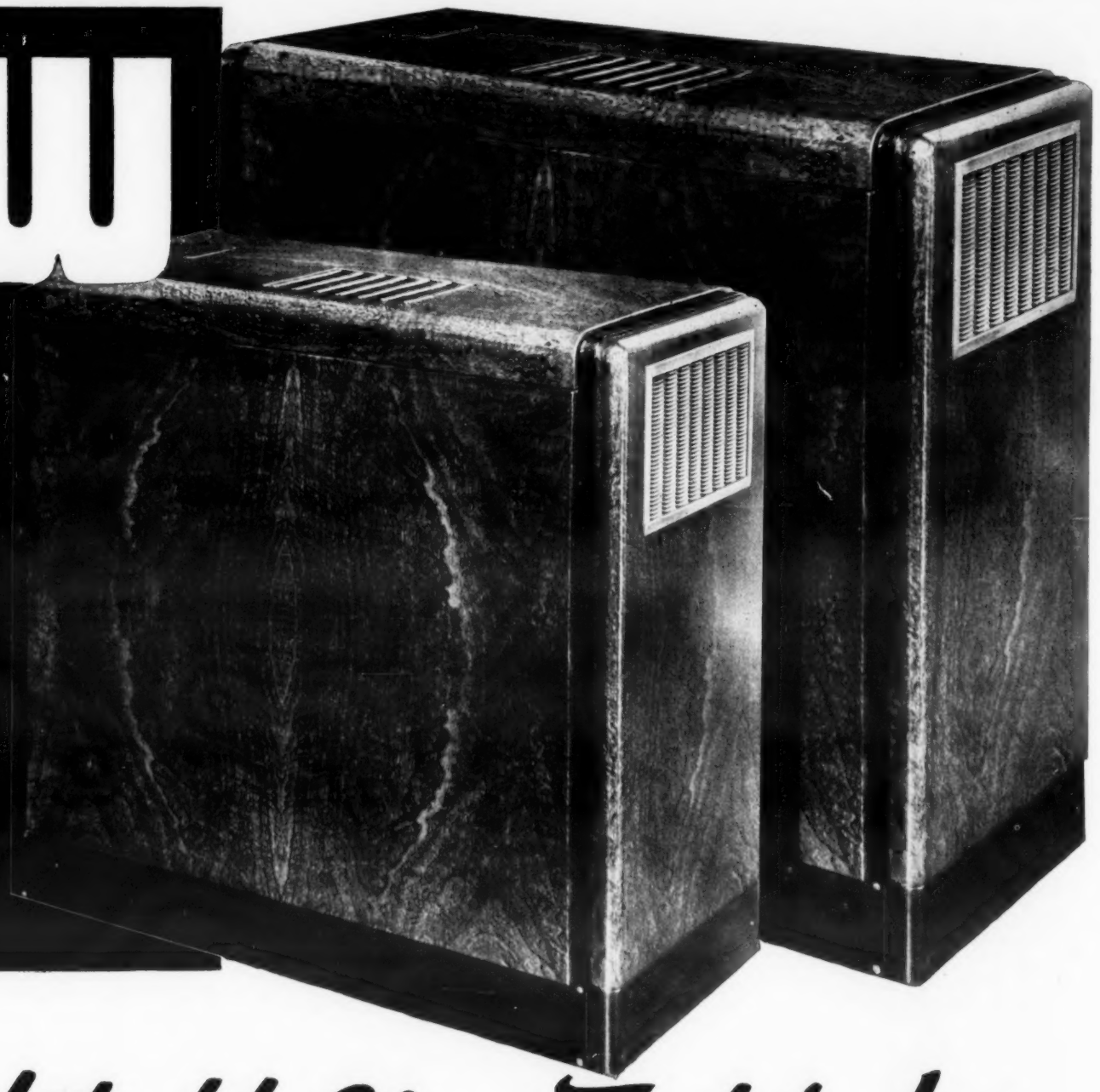
COPELAND *Commercial* REFRIGERATION

THE built-in ability of every Copeland unit to withstand the wear-and-tear of everyday use for many years, is the direct result of high precision manufacturing standards. In every way, a Copeland unit is an outstanding example of a superbly engineered refrigerating mechanism. It possesses superior smoothness. It has refinements that assure efficient, long-time performance. It is unusually economical. Your line should be this fine Copeland line. Why not write, today?

COPELAND REFRIGERATION CORPORATION
Manufacturers of a complete line of Household and Commercial Refrigeration
Holden Ave. at Lincoln . . . DETROIT, MICH.

Copeland
DEPENDABLE *Electric* REFRIGERATION

2 NEW air-cooled room coolers added to KELVINATOR'S COMPLETE LINE



Open Profitable New Fields for

KELVINATOR AIR-CONDITIONING DEALERS!

1. *No water or drain connections necessary!* Can be located any place where a window connection can be made.
2. *Easily moved.* No plumbing connections, no drains to re-locate. Can be moved like any other piece of office or household equipment.
3. *Completely self-contained* in a furniture-steel cabinet finished in walnut grain. Harmonizes with finest office or home furnishings.
4. *Simplified control.* On or off, high or low at the flip of a switch.
5. *Cools, De-humidifies, Filters.* Complete summer air-conditioning. Circulates clean, dust-free, healthful air without annoying drafts.
6. *Low Prices.* Kelvinator is making air-conditioning available to people of limited means, multiplying the profit opportunities for Kelvinator dealers.

Kelvinator's complete air conditioning line includes water-cooled as well as air-cooled room units; suspended units and complete air conditioning systems.

● These new, air-cooled additions to the Kelvinator line make air-conditioning prospects of everyone. Kelvinator dealers now can sell room cooling to the office building tenant who can't connect to a water line, to the storekeeper who holds a short lease, even to the home owner or renter who plans to move in the near future. A big, new market, in addition to the fast-growing air-conditioning fields of the past! Truly, Kelvinator commercial dealers have *everything* in their favor!

Easy Application: Kelvinator has taken the mystery out of air conditioning! With Kelvinator's complete line of self-contained equipment and *understandable* engineering data, dealers can figure ordinary requirements *on the job,* select the right equipment and be in position to take a signed order on the first call, right in the prospect's office. On complete air-conditioning systems, dealers have full advantage of Kelvinator's prompt, intelligent, engineering operation.

A Powerful Selling Plan: Kelvinator also gives its dealers the backing of a proved air-conditioning selling plan—that saves sales effort on non-prospects, and that arms the dealer with convincing facts and figures for closing profitable business. No other sales plan like it in the industry.

Backed by Kelvinator Experience: Kelvinator continues to lead in engineering progress. Guided by 22 years' experience in temperature control, Kelvinator engineers today are engaged in a sound, far-reaching program of engineering research and development which assures that Kelvinator dealers will be first to have new developments in air conditioning, as well as in every other field of temperature control. Big profit opportunities are most certainly in store for Kelvinator commercial dealers!

Kelvinator COMMERCIAL FRANCHISE

Kelvinator commercial dealers select the franchise they are equipped to handle . . . . assume no obligations in fields they hesitate to enter.

☐ **Air Conditioning.** Complete franchise or separate franchises on room coolers, as desired.

☐ **Commercial Refrigeration.** Exactly the right type and size of equipment for every need. 24-hour delivery service on special cooling units

☐ **Liquid Cooling.** A complete line of water and milk-cooling equipment, and the finest beverage coolers.

☐ **Automatic Heating.** Coal as well as oil burning equipment for every need of home or small business building.

Perhaps you might qualify for one or more of these valuable franchises. Call your nearest distributor or write direct to Kelvinator Corporation, Commercial Franchise Department, Detroit, Michigan.

KELVINATOR

Line of Small Sized Ammonia Machines Marketed by Lipman

(*Concluded from Page 1, Column 3*)

electrical connections to the high-pressure cut-out must be made on installation. Compressor seal has been changed on the new models, and the brass bellows eliminated. Condenser is of the counter-flow type, using a monel metal water tube.

The machines are made in three types, for low, ordinary, and high-temperature applications. Low-temperature types are intended for applications where evaporator temperature ranges from -25° to 0° F.; ordinary types, for evaporator temperatures between 0° and 25° F.; and high types, for evaporator temperatures between 25° and 50° F.

Two-cylinder compressors are used on both the 1 and 1½-hp. models, bore and stroke being 2⅜ in. by 2 in. Oil capacity of the crankcase is 1 gal., and receiver capacity 13 lbs. of ammonia at 100° liquid temperature, filling the receiver three-quarters full. The units are not charged with ammonia when shipped from the factory.

Complete unit consists of compressor, condenser, receiver, motor, V-belt drive, and belt guard, all on a rigid cast-iron base. High-pressure cut-out and condenser water regulator are included, and are already mounted on the machine. A suction line strainer is built in the compressor body, and connections for gauges and for charging or purging are provided in the compressor service valves.

Single-phase motor is standard on the two smaller models, and is 60 cycle, 110/220 volts reconnectable. An automatic starter must be used on the 1-hp. unit when it is to be connected to 110 volt current. Starter on the 1½-hp. motor is automatic, across-the-line type, with a thermal overload relay providing overload protection.

THE MASTERCRAFT
ADJUSTABLE PAD AND CARRYING HARNESS
FOR SAFE DELIVERY OF AUTOMATIC REFRIGERATORS

Pad and harness adjustable to many sizes and styles of cabinets. Economical—Efficient. Sturdily constructed, easily applied. Name of refrigerator attractively lettered on pad without charge.

Pad (Adjustable) $9.50 ea.

Harness (Adjustable) $6.00 ea.

Illustration at left shows type F adjustable harness and adjustable pad.

For other types, also individual carrying straps, write for full information.

BEARSE MANUFACTURING CO.
3815-3825 Cortland Street, Chicago, Illinois

New Lighting System in Crosley Plant Reduces Power Consumption

CINCINNATI—New lighting system at the Crosley Radio Corp. factory here gives almost the equivalent of daylight illumination, with an electric consumption of approximately 3.6 watts per square foot of production area, instead of approximately 4.5 watts in the average lighting system, engineers report.

Entire cost of the installation is expected to be paid for in five years by the savings it will effect over the old method of having to change the illumination of the different departments every time a change was made in production plans and facilities, they say.

Elimination of eyestrain formerly caused by improper lighting and shadows, is expected to increase the efficiency of the workers.

The program embodied the following four principles: an even light over the complete floor of approximately 25 foot candles, the least amount of shadows, the least amount of glare, and use of fixtures then in the plant as much as possible.

A prime requisite of the new system was that it be permanently installed, and not subject to change with every new production method.

Tests were made for a month, and it was found that lights hung nine ft. high in a set pattern gave an illumination over the entire floor. The bays are 21 ft. by 20 ft. 6 ins.

One building was equipped with the Glassteel Diffusers which the company already owned, and new lighting equipment was purchased for the other building.

Because of the low height of 11 ft., it was necessary to use Graybar fixtures, which consist of an inside frosted bulb with bowl silvered on the outside. For fine inspection, 200 watts are used, and 150 watt bulbs for other places.

Program Completed For A.S.R.E. Meeting

(*Concluded from Page 1, Column 5*)

"Application Factors Which Govern the Selection of Freon Refrigerating Equipment for Air-Conditioning Service," by J. R. Hertzler; and "Water Supply as Affected by the Demand for Summer Air Conditioning," by D. C. Morrow, vice president of Community Water Service Co., Washington, D. C.

Final A.S.R.E. session, to be held at the Skytop Club on the morning of June 24, will cover "Thermal Problems in the Domestic-Commercial Field," and will be presided over by Vice President H. M. Williams.

Papers to be presented include:

"Review of Practice in Domestic and Commercial Ice Refrigeration," by C. F. Holske of American Ice Co., New York City; "Dehumidification with Air Conditioning," by William Goodman of Trane Co., LaCrosse, Wis.; "Shell Type Porcelain Enamel Refrigerator," by F. C. Meacham and E. F. Schweller of Frigidaire Corp., Dayton; and "Infiltration Characteristics of Entrance Doors," by Arthur H. Simpson of Van Kannel Revolving Door Co., New York City.

In addition to the technical sessions, a lively program of social events has also been prepared for the meeting by the Philadelphia committee of hosts, under C. R. Logan, entertainment chairman, with Mrs. Logan acting as chairman of the women's committee.

Miss Dorothy Cross, Philadelphia archeologist, will be speaker at the opening luncheon at Skytop on the meeting's first day, and will also speak informally that afternoon at the tea for women convention guests.

That night, members of the A.S.R.E. will join with A.S.H.V.E. members in a steak fry on Skytop Mountain, an outdoor event which was quite popular with both society groups two years ago.

The A.S.R.E. banquet and dance will be held at Skytop Lodge on Tuesday evening, June 23, and will follow the precedent set at recent conventions—no speakers and no formal program.

Entertainment committee, in addition to Mr. and Mrs. Logan, includes C. E. Shedd, A. F. Saunders, H. M. Roberts, L. A. Tucker, R. J. Thompson. Women's committee includes Mrs. L. S. Morse, Mrs. George Hulse, Mrs. David L. Fiske, and Mrs. H. C. Guild.

Service 'Canvassing' Big Business Builder for Small-Town Dealer

ATTLEBORO, Mass. — A special service plan and consistent canvassing enabled the Schofield Hardware Co., Leonard dealer, to sell 110 refrigerators during 1935 in this town of less than 2,500 families.

Of the 110 sales, reports W. Schofield, head of the firm, 85 were made by W. S. Schofield, his son, who has worked out an unusual service plan in connection with his daily canvassing work.

At every house where he finds an electric refrigerator in use, Mr. Schofield inquires if the unit needs servicing, and offers a combination of operations including cleaning, lubricating, and adjustment for a nominal fee.

After the service work is done, he attaches a card to the panel of the unit which tells the customer the date of the servicing, the service man's name, address, and telephone number, and the suggested date—usually about six months later—on which the machine should be next inspected for service needs. Mr. Schofield keeps a careful record of calls, so that he can call back at the time marked on the card.

This method of soliciting business is in itself a source of additional profit, since the units inspected often require major repair work on which regular service charges are made. But the plan is chiefly valuable as a means of getting leads on the refrigerator-owner's friends who are thinking about buying an electric refrigerator.

Through the service offer, the hardware firm has a means of reaching prospects through owners of competitive refrigerators as well as through Leonard users.

Use of the service plan is indicative of the aggressive attitude that characterizes Schofield's entire merchandising policy. The following incident illustrates this point: just before Christmas last year, a friend bet Mr. Schofield, Sr., a trip to Detroit that he could not sell 10 refrigerators in the week before Christmas. Mr. Schofield took the bet—and sold 15.

Milwaukee Salesmen Hear Stedman Speak On Buying Trends

MILWAUKEE — Discussing the existing market for electric appliance sales, Gerald Stedman, vice president of the Cramer-Krasselt advertising agency, told dealers and salesmen who attended a recent breakfast-sales meeting conducted by the Wisconsin Radio, Refrigeration & Appliance Association, that natural survey figures show a substantial increase not only in the number of women who have expressed a *desire* to buy a major electric appliance in 1936, but also in the percentage of prospective purchasers who definitely *intend* to buy this year.

Of the refrigeration sales outlook, he said: "In a survey in which 34,866 women were interviewed, figures on the percentages of prospective purchasers show an increase of from 40.3% to 49.2%, and of this, the definite buying intention rose from 18.6% to 21.7%."

Appliance salesmen should find 1936 a banner sales year, Mr. Stedman declares, first, because all important indices show an increased purchasing power, and second, because people's interests are turning towards making investments in home improvements.

Under the topic "Successful Selling," Mr. Stedman told dealers that they might increase their refrigeration and appliance sales by correcting weaknesses in their selling set-up in: location, layout, display, departmentalization, promotion, or personnel wastes.

He also urged them to check their stock to determine if they had a sufficient volume of display material and sales literature, and to investigate the causes of lost sales, 63% of which, he stated, can be traced to indifference, ignorance, misrepresentation, haughtiness, over-insistence, and substitution.

Ways by which the dealer or salesman could obtain new sales leads from "users" as outlined by Mr. Stedman, included:

1. Turn a user into a traveling salesman; 2. Make user feel a friendship obligation; (3. Get user testimony, reference privilege; 4. Encourage owner to furnish prospects.

The average amount of contact work required before completing a sale is slightly less in 1936, than that for 1935, the speaker declared. Following is his comparative table:

Calls per prospect	1935	1936
Telephone	13.8	8.1
Cold canvass	15.	11.6
Owner calls	5.	4.2
Presentations to close	5.5	3.5

Jewett 1936 Model Has 3 Compartments

(*Concluded from Page 1, Column 5*)

of 252 cubes, or 17 lbs. of ice, at a freezing.

The freezer is 18 in. wide, 17 in. deep, and 6 in. high, to give ample space for the storage of frosted foods.

Thermostat is mounted on a panel at the right of the freezer, and a safety thermometer is located between it and the pull-down door which opens the ice tray compartment.

Directly below the evaporator is a large aluminum pan, which catches the defrosting, and which also may be used as a rearranging shelf for additional cold storage, if desired.

Main compartment of the refrigerator is of conventional type, fitted with a large draw-out basket for the storage of left-overs, flat-bar shelves, and interior electric light. This compartment has 6 cu. ft. net storage capacity.

Streamline Cabinet Design

The cabinet itself is of streamline design, resembling in general contours the 1936 Leonard and Crosley models. Exterior finish is Dulux, and interior of both compartments is porcelain. The four feet are porcelain also.

The two porcelain compartments are made with jamb or breaker strips as a continuation of the lining. This jamb is set in rubber, 1½ in. wide, and has a hard rubber bead on the front edge, preventing condensation. When the doors are closed, the hard rubber bead on the front jamb fits into a groove in the gasket on the overlap of the doors, forming a double rubber seal.

Conventional joint between the liner and the breaker strip is eliminated in this method of construction.

The refrigerator takes up a minimum of floor space, considering its capacity, being only 29¼ in. wide, 22½ in. deep, and 60½ in. high. Total shelf area of the model is 15½ sq. ft.

Economy of operation is claimed for the unit because the main refrigerator door will be opened only about two-thirds the usual number of times, fruits, vegetables, and other foods which may be kept at higher temperatures being stored in the upper compartment.

Kellogg Compressor

Cabinet insulation is 3 in. thick throughout. Compressor is equipped with a ⅛-hp. motor, and is made by Kellogg Compressor & Mfg. Corp., Rochester, N. Y. It is direct-driven; but conventional belt-driven compressor is optional with the purchaser.

In tests made with the compressor, it is claimed, its current consumption was only 1½ kwh. in 24 hours in a 90° F. room, with a refrigerator temperature of 40° F. in the main food storage compartment.

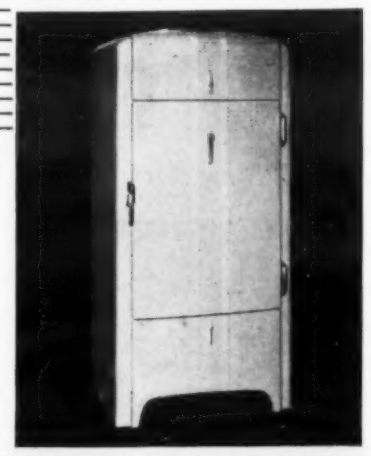
The refrigerator is covered by a standard one-year warranty. A five-year warranty on concealed parts is available at an additional cost of $5.

The New JEWETT MODEL 80 has what it takes to beat . . . low-price competition!

Turn all your prospects into customers. Stop them from going across the street to your competitor to shop for low prices. Show them the new Jewett model 80. At a glance they will appreciate its greater beauty; by comparison they will understand its far superior quality. For here is a refrigerator styled to the smartest dictates of today and constructed to the Jewett eighty-five year old standard of outstanding quality.

But it's the price that is most important to you. It competes with, and cuts under the prices of many refrigerators that are giving you such terrific competition. Now you can meet this competition on a quality basis that will build and protect your good-will.

DEALERS! Get set to clinch the sales that are now getting away from you. The Jewett *exclusive* sales plan provides the way. Write or wire.



JEWETT MODEL 80

ONE SIZE ONLY
Makes possible maximum production economy and low retail price. 15.5 sq. ft. shelf area.

CHILLED HUMIDIFIER
Automatically operated hinged door. Maintains temperature of 45 degrees for storage of fruits and vegetables. Entirely Eliminates drying out.

COLD STORAGE COMPARTMENT
Oversized, providing ample room for fast freezing of 17 lbs. of ice cubes. Keeps frosted foods in prime condition indefinitely.

TO AGGRESSIVE DEALERS
Jewett also supplies commercial refrigerators of practically every type. Write for catalog showing bulk and ice cube makers, service and mortuary refrigerators, etc.

THE JEWETT REFRIGERATOR CO. • BUFFALO, N. Y.
Established 1849

AIR-RITE
DEODORIZER
for refrigerators

Keeps refrigerators sweet. Suspend from any shelf. Attractive finish. Size 2¼"x3½". To retail for $1. Write for literature and prices.
Address Box 35, Fairview Station.

Walway Co.
DETROIT MICHIGAN

VIRGINIA SMELTING Company
WEST NORFOLK, VIRGINIA
131 STATE ST. BOSTON-76 BEAVER ST. N.Y.

EXTRA DRY
ESOTOO
LIQUID SULPHUR DIOXIDE
V-METH-L
VIRGINIA METHYL CHLORIDE

New 1936 Model SOUTH BEND LATHE $75 LESS MOTOR DRIVE

Write for details on this 9 in. x 3 ft. Workshop Precision, back-geared, screw-cutting Lathe. Made in 8 different drives, 4 bed lengths. Easy Payment Terms arranged over extended period of time. Complete information on request.

FREE WRITE FOR CATALOG 15

WEIGHS 310 Lbs. Crated

SOUTH BEND LATHE WORKS
906 E MADISON ST. SOUTH BEND, IND. U.S.A.

Wood Explains Timken Plan to Help Dealers Buy Supplies And Finance Sales

By Eleanor Blum

DETROIT—How the Timken Silent Automatic Co. helps its dealers to purchase equipment and supplies, and to finance retail sales, was described by W. C. Wood, secretary-treasurer of the company, at the Merchandising Session of the Oil Burner Institute at Convention Hall here recently.

"Persons engaged in sales work must be somewhat financial minded just as we in the financial department have to be sales minded if we are to enjoy all the success from the oil burner business to which we are entitled," Mr. Wood told his audience.

Capital Outlay Heavy

"Whether an individual, a partnership, or a corporation starts in business there is a definite amount of money required as invested capital," Mr. Wood explained, "the amount depending on the kind of business, the cost of production, the method of selling the product, seasonal requirements, and other conditions. Except in cases where fixed assets, materials, or other items are turned in as part of the capitalization, the initial investment is all in cash, a certain amount of which must be spent immediately for automobiles and other operating equipment, materials, and overhead items such as rent and salaries.

"As the business grows," the speaker pointed out, "the cash is depleted and arrangements must be made to help carry the inventory and receivable items unless the profits are sufficient to take care of the additional requirements.

Cash Needed in Peak Season

"One method is by investing more in actual capital, but in the majority of cases the additional money is secured through other sources. Financial assistance is more often required by business during their peak periods resulting from seasonal selling.

"In the sale of oil burners we have this problem of seasonal selling," Mr. Wood said, "making necessary the discounting of customers' paper for a good many of our dealers in order that their cash working capital is not depleted with the result that difficulty is experienced in meeting pay-rolls and paying bills promptly.

"A shortage of cash for operations may result in serious loss of sales, which also means loss of profits. This is where the finance companies and the banks enter the picture.

FHA Plan Helped

"Banks were never very much inclined to loan money on conditional oil burner paper until after the government passed the Federal Housing Act whereby such loans could be insured. This originally left only the finance companies which could and did make a business of discounting such paper. If it were not for the fact that the oil burner industry had this outlet for their paper, sales would have been curtailed considerably.

"At least 50% of all sales are made on a conditional basis with the majority on terms at present of three years. In being able to discount paper on good credit risks with financial institutions the oil burner dealer is able to secure at least part if not all of his working capital. This is especially true where paper can be qualified under the Housing Act and 100% advance without recourse received."

Patterned After Finance Firms

The Timken plan where the discounting of contracts is directly with the dealers is practically a standard procedure and conforms to the requirements of outside finance companies with the exception of a consignment plan, according to Mr. Wood.

Prior to the Housing Act, he explained, the company was taking part of its dealer's paper under a 90% advance basis with recourse. Since the Housing Act was passed qualified paper has been accepted without recourse and with 100% advance. This is all being handled through a wholly owned subsidiary, The Timken Acceptance Corp.

"It is, of course," the speaker added, "optional with the dealer as to discounting his paper with us. In some cases the local banks open a line of credit for the dealer so that it is not necessary that he avail himself of our discounting arrangements although he may be operating under our consignment agreement."

On the Summer Term paper, that is paper which is accepted after March 1 with on payments required from the customer until September, Timken is taking all that can qualify under the Housing Act and is charging the dealer a straight 6% per annum on the unpaid balance from the time discounted until the first monthly instalment is due from the customer, Mr. Wood reported.

90% Advance Provided

Cash contracts written with the balance due September or October 1 or conditional contracts not qualified under the National Housing Act are also being discounted for approved dealers on the same basis but with recourse and a 90% advance.

"This plan," he said, "gives the approved dealer an outlet for all of his paper and releases the money that would be normally tied up in receivables so that he has the necessary working capital to carry on his business.

"In our program," he continued, "we also consign burners to approved dealers, these units must be paid for in cash upon withdrawal or the mailing to us of an approved customer's contract. The mailing of a properly executed customer's contract properly executed customer's contract permits the dealer to withdraw and install the unit and allows us to release another unit to replenish the dealer's stock.

Ship on Receipt of Contract

"We will also ship to a dealer on open account a boiler or furnace unit upon receipt of an approved customer's contract. This plan gives the dealer a program whereby he can sell and install without any investment being made by him for our products. When the installation slip is received at our office we discount the contract for the dealer and send him our check for the net proceeds less the sales price of the unit furnished by us."

A dealer operating under a program such as he described probably could open account terms locally for his miscellaneous purchases of pipe and fittings, tanks and other installation materials, Mr. Wood stated.

Advise Delay of Cash Outlay

"If the dealer can also defer payment of salary and wages so that pay-rolls are paid the week following for the previous week's earnings and pay the commission to the salesman after installation of the equipment no cash outlay will be required by him until after receipt of remittance from us on the proceeds of discounted contracts."

In other words, the speaker contended that the dealer could operate on a credit basis entirely and with quick turnover he should have no difficulty in carrying on and meeting his obligations provided his business is on a profitable basis.

Proper Service Set-Up Required

"With the large number of dealers we have we must be very strict in maintaining standard terms and compliance with our consignment and arrangements," Mr. Wood said. "We must also be sure that the dealer is well qualified to install the equipment and has a proper service set-up so as to adequately take care of service requirements.

"Our plan has been in effect for a number of years and through the excellent cooperation of our dealers we have had practically no losses. One reason is, I presume, that home owners generally are one of the very best risks when sales are made on a conditinal basis."

Investigating for Credit

When investigating for credit, Mr. Wood warned that the usual standard as to how an indivdual has paid his obligations in the past is the base from which to start. His present position, prospects, and salary are also necessary points to consider. He pointed out that too often chances are taken in accepting a job where the clearances on accounts of the prospect show that he has been slow but satisfactory pay.

"Sometimes during depression periods there may be reasons for such a condition but the alert credit man," Mr. Wood said, "will get the complete story and if the prospect is deserving credit will be approved. Credit losses must be expected but so long as the percentage is not above the normal figure for that particular business the credit man cannot be criticised."

Mr. Wood listed three other points that should be watched closely by dealers and factory branches in addition to credit risks, for, he said, they are more vital and can, and sometimes do, cause more collection troubles, bad debts and removals, to say nothing of the loss of good will, than all the poor credit risks.

How to Avoid Credit Losses

These three are:

1. Train your salesmen to give your prospect facts only and not use high pressure methods such as verbal or written promises on extra equipment not specified in the contract, guarantee of fuel consumption beyond your standard guarantees, etc., which will not only result in dissatisfied users but removals and bad debts as well.

2. Be sure that the jobs are properly surveyed and properly installed. If the customer has insufficient radiation or an overloaded boiler, get it corrected before installation or at least secure a waiver so that payment of the account cannot be held up for such reasons.

3. Maintain adequate service with efficient and well trained men, for with poor service you are almost guaranteed that a portion of your accounts will be slow regardless of the fact that your customers may have an exceptionally fine credit standing.

"The collection department is where the complaints are received if the customer still owes on the equipment. Three years is a long time to carry an account so don't give your customers any cause for dissatisfaction, which may not only spoil sales to his friends or acquaintances but also hold up payments on his account," was Mr. Wood's final warning.

Six Firms Win in "Radio Ad Manager" Contest

BRIDGEPORT, Conn.—The six winners in the "Radio Ad Manager" contest conducted by the radio division of General Electric Co. have been announced by company officials. The dealers to receive awards represent all types of radio selling set-ups in cities and towns from 1,000 to 500,000 population.

Contestants were required to produce and run campaigns of not less than six newspaper advertisements, using a G-E "Radio Ad Desk" which contains a complete set of material including mats, headlines, copy, product photographs, and illustrations used in building up an advertisement layout. Cash awards amounted to the total cost of each winning dealer's campaign.

Those awarded prizes were: Kansas City Power & Light Co., Kansas City; Wurlitzer, Milwaukee; L. A. Shattuck, Clinton, Wis.; Hatry & Young, Hartford, Conn.; Muller's, Lake Charles, Iowa; and Davis & Moore, Inc., East Cleveland.

The new C. I. T. 6% BUDGET PLAN
REDUCES TIME PAYMENT COSTS

Display this sign in your windows and showrooms. Get copies of this sign and of the C. I. T. 6% Budget Plan Chart No. 7165 from the nearest C. I. T. Office.

Now Extended to Refrigerators and Major Mechanical Household Appliances

The new C. I. T. 6% Budget Plan for refrigerator dealers fills the gap left by the withdrawal of F. H. A. Your prospects who were considering a purchase under F. H. A. will welcome the extension of *this* Plan to the appliance field. Alert dealers are adopting and advertising it to help them reach their greater 1936 sales opportunities. Although the new C. I. T. 6% Budget Plan offers drastically reduced rates, C. I. T. retains its same high quality localized credit and collection service. Dealers are assured that their interests are safeguarded by C. I. T.'s resources and experience.

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Around the World

With George F. Taubeneck

SYDNEY Australia

Brandy Neat

It seems to me that I was continually tired and thirsty the whole time I was in Australia. Reasons for That Tired Feeling were the beds, legging it around factories, and attempting to see all the people who wanted to see us.

As for being thirsty, you'd be, too. They just don't drink water in Australia. It is never served at meals, and jolly well unobtainable at any time.

But boy, howdy, do they drink! We've seen some fair-to-middling drinkers in our day (there are several in the refrigeration industry who are no small shucks), but all the hard drinkers in America are sissies compared to the Australian variety.

The "Pubs" or saloons close at 6 o'clock in the evening in most Australian cities—two hours later in some (after that the only places you can get something to drink are the cabarets), and that grave injustice seems to weigh heavily on the mind of your Australian he-man. Continually he seems to be thinking: We must have another spot before the pubs close.

So they have a spot before breakfast, some beer with breakfast, two or three before lunch, some with lunch, several after lunch, and one final orgy between 5 o'clock and 6 o'clock closing.

What's more, they fairly club you into submitting to the same routine. And one of their keenest enjoyments is to get an American drunk. That's not only tough on the American's stomach and head, but on his pocketbook, too, if he keeps up his end of the checks.

In New Zealand (where the same condition obtains) we unconsciously (I'll say) stumbled onto an antidote or rather, a preventive. It worked both places, and effectively squashed any drinking marathons which might have been calculated to put the writer under the table.

For our first drink in Auckland we ordered brandy, straight (they call it "neat"). The refrigeration men lined up at the bar were astounded.

"Is your stomach upset?" one inquired solicitously.

No, we said, we just happened to like brandy.

Their marvel knew no bounds. A man who drank brandy neat because he liked it! They all drank beer (which is the national drink "down under"—it is a heavy ale-like beer, unlike anything sold in America).

Impressed, no bouts were started.

We tried the same trick in Australia, and got the same startled reaction. Thereafter we weren't called upon to do more than a normal Australian day's libations—that is, until the Jervis Bay trip.

Several Sydney refrigeration men took us to Jervis Bay, a famous Australian resort, for some deep-sea fishing one week-end. The 130-mile road to Jervis Bay is lined with eucalyptus trees and pubs. We missed two pubs on the way down. By the time we reached Port Jervis, they had us. From then on we had to call a halt on the Chateau (the local brandy).

Energetic Frank Hansen

Upon arrival in Sydney we found that the able and energetic FRANK HANSEN, manager of F. C. Lovelock & Co., Ltd., Australian representative of ELECTRIC REFRIGERATION NEWS, had been besieged with requests for the writer to visit factories, display rooms, and places of business.

The NEWS has a large number of subscribers in Australia, and these readers were most anxious that the editor see what *they* were doing, and how thoroughly they were doing it. For years they had been reading about Americans, and now they wanted Americans to read about them—which seemed only right and proper.

So Frank, who is a most agreeable and highly popular fellow, had obligingly arranged a schedule for us which occupied practically every moment of the day.

* * *

Bed and Board

Naturally we couldn't keep all the appointments on schedule, particularly the early morning ones—although why we stayed in bed we don't know, for the beds were goshawful.

First night we were so dog-tired when we fell into bed that we dropped off to sleep instantly. Next morning we woke up sore and stiff, as though we had been indulging in unaccustomed acrobatics.

Upon examining the springs, we found a most peculiar design. The top 18 inches consisted of a rectangular wooden construction, as did the bottom 12 inches. Between these two wooden frames was stretched a sheet of wire netting similar to what we called "chicken fence wire" back in Marshall.

As a result, a man of my length sleeps with his head, shoulders, and feet upon wooden cross-pieces, and with his torso sagging in a curve in the middle. And when you wake up, you wish you hadn't gone to bed.

When we complained to the management, we were answered with gales of laughter. Ha-ha-ha, the funny American who couldn't sleep on the bed. Even our pal, Mr. Hansen, who had suggested the hotel to us, got a bunch of bellylaughs out of the situation.

And when we moved over to the finest, most expensive (about eight dollars a day in American money) Sydney hotel, the Australia, we found a high, lace canopy over the bed, but the same springs underneath!

Later we learned that all Australian hotel beds are like that.

How to Send Letters To the Editor

Letters may be addressed to George F. Taubeneck, Editor of ELECTRIC REFRIGERATION NEWS, in care of the following:

(Mail to arrive before June 1)

Mr. Ulrich von Kremski, Mgr.
Frigidaire G. M. b. H.
Wiebestrasse 12,
Berlin, N.W. 87, Germany.

Warchalowski, Reckzugel & Co.
Paulusgasse, 3
Vienna, Austria.

(Mail to arrive before June 15)

Mr. K. Altes,
Messrs. Mijnssen & Co.
Keizersgracht 205,
Amsterdam, Holland.

Nils Laurin, Manager
Refrigeration Dept.
Aktiebolaget Elektrolux,
Stockholm, Sweden.

(Mail to arrive before July 1)

Mr. J. Raymond, Editor
Cold Storage & Produce Review
Empire House
St. Martin's le Grand
London, E.C., England.

E. Hallstrom—Who Knows How to Make Money

Responsible for inflicting these four-fifths length bedsprings upon the Australian traveling public is a man named E. HALLSTROM, who made a mint of money out of his idea.

When he went into the bedspring manufacturing business, Australia was plagued with vermin. Box springs in use at that time caught dust and dirt, gave harbor to pests. Hallstrom's bedsprings were designed to give no opportunity for vermin to roost.

He sold them all over the land, glutting the market. His number one production man died, and Hallstrom quit the business. Having purchased an expensive piece of property—a promontory jutting out a stretch into Sydney's wandering harbor—on which to erect his home, Hallstorm's reserves were not high, and eventually his bank account dwindled.

One day he walked into a furniture store operated by a friend, thinking he would sell some furniture to get ready cash. Instead of buying, the friend told him that a Sydney hospital was planning to buy some electric refrigerators, and why didn't he run around there, pick up the order, take it to a dealer, and collect the commission.

Hallstrom grabbed his hat, and quickly made the rounds of Sydney refrigeration dealers, learning the story of modern electric refrigeration, the salient features of each line, collecting literature.

After studying his notes, he decided that he'd try to sell the hospital Electrolux, rather than electric refrigeration. Which he proceeded to do.

* * *

10,000 Chests—Kerosene-Operated

And there, my hearties, lie the beginnings of a Strange Romance of Refrigeration, one totally without duplication in any country this writer has visited. We'll hasten to the climax, the *denouement*, of this story, because it's news:

Leading sales in Australia of all other household refrigerators—electric, gas, ice—is the Hallstrom kerosene-operated absorption type refrigerator!

In four years Hallstrom has sold more than 10,000 of these oil-burning refrigerators; and his production schedule for the 1936 season—which won't really get under way until September—is 7,000 boxes.

The Hallstrom Non-Electric Refrigerator is an outgrowth of the Crosley Icy-Ball, of which some 3,000 were sold in Australia before Hallstrom entered the picture. It is a wooden chest-type box of 4½-cu. ft. capacity, with the boiler-burner-condenser unit clamped to the side of the box. It retails for 49 pounds, 10 shillings (about $200) in New South Wales. An additional 2 pounds, 10 shillings is charged in other Australian states.

Sold on an all-exclusive two-year guarantee, the Hallstrom units are shipped back to the factory when service is needed. He pays the freight both ways.

* * *

A Natural Demand

To get back to the story, household electric refrigeration became Mr. Hallstrom's absorbing (no pun) passion after he had sold the hospital jobs. He studied it intensively.

Electrolux refrigerators, as anyone in Australia seems ready to tell you, gave a lot of service trouble, and did not have a good name in the land. Manufactured by the British Electrolux firm, they seemed to carbonize badly.

Hallstrom thought—and still thinks—that he could manufacture an Electrolux which would work satisfactorily in Australia. But finding that Electrolux had other plans, he turned his attention to the Crosley Icy-Ball.

Here was a simple refrigeration operation: a kerosene burner heats ammonia, drives the gas upward into a water tank, where it condenses, is sent through the refrigerated box, and returns to the receiver.

It was easy and economical to make. He modified it a bit at first, quite a bit later. (It is a Hallstrom fetish to maintain secrecy about his manufacturing operations. He claims to have some mysterious new principle affecting the charging of these machines—a task which he intrusts only to his 21-year-old son, JOHN HALLSTROM.)

Mr. Hallstrom's business was built by advertising. He runs less-than-page advertisements in most of the Australian publications—daily and weekly. So great has the volume of inquiries been from this advertising that the merchandising organization has practically built itself.

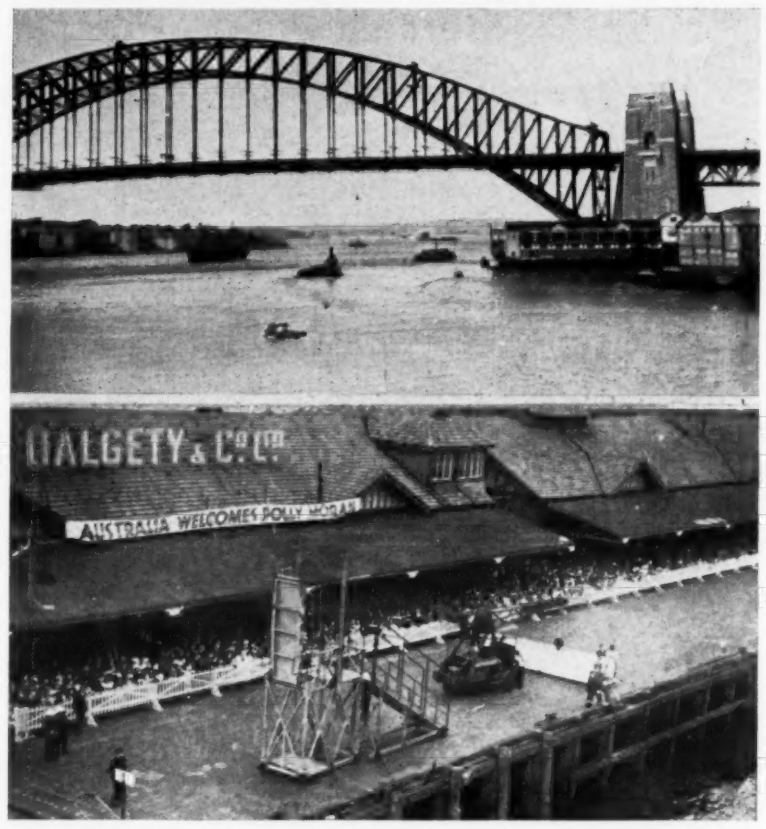
His present plan calls for three agents (each handling the Hallstrom refrigerator under a different brand name) in each city throughout the land.

At his barn-like factory, 462 Willoughby Road, Willoughby, New South Wales, Mr. Hallstrom showed the writer new upright models, finished in Dulux, with the tank mounted on top, like the Perfection oil-burning refrigerator. Having 6-cu. ft. capacity, this model will sell for eight pounds ($32) more than his chest model.

Still believing that the chest model is a better refrigerator (he copied paragraphs out of an editorial of ours—omitting the discussion of the flop

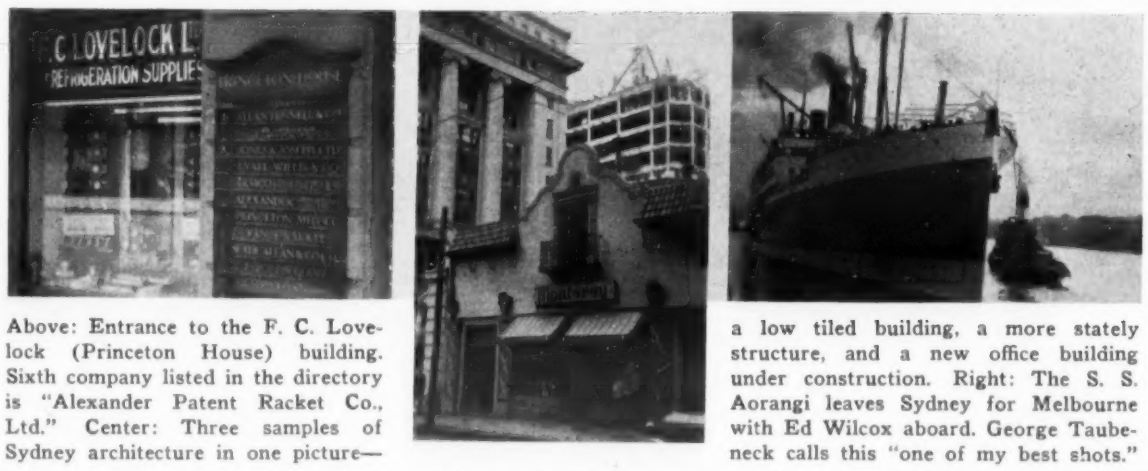
(Continued on Page 8, Column 1)

Sydney's Famous Bridge & Dock



Above: To the world traveler entering the Sydney harbor for the first time, this view of the magnificent Sydney bridge is an imposing sight. Below: The Sydney dock, and the crowd out to welcome Polly Moran.

Scenes in Sydney Streets and Harbor

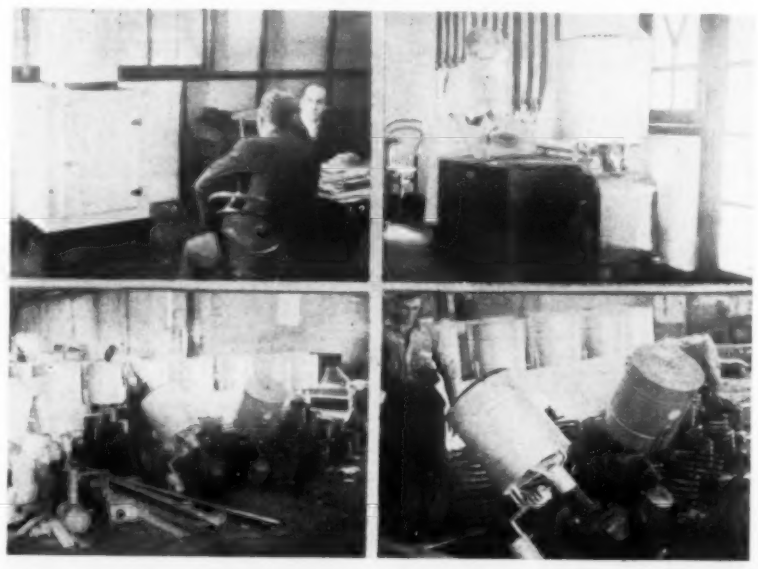


Above: Entrance to the F. C. Lovelock (Princeton House) building. Sixth company listed in the directory is "Alexander Patent Racket Co., Ltd." Center: Three samples of Sydney architecture in one picture—a low tiled building, a more stately structure, and a new office building under construction. Right: The S. S. Aorangi leaves Sydney for Melbourne with Ed Wilcox aboard. George Taubeneck calls this "one of my best shots."

George's Reception Committee

Waiting for George Taubeneck on the Sydney dock were A. A. McCullagh of Emmco; Ed Wilcox, Kelvinator export manager; Frank Hansen of F. C. Lovelock, Ltd; and Eric Ebeling, refrigeration manager of Dangar, Gedye & Co. Right: George and Mr. Wilcox meet.

In Hallstrom's Factory



Upper left: One of Hallstrom's new "upright" absorption type refrigerators; at the right, one of the chest-type units pioneered by the company. The lower pictures show units being manufactured.

Newspapers in Six Main Cities Carry Kelvinator Spreads

DETROIT—Newspapers in six key cities are carrying Kelvinator's ten week advertising campaign consisting of cooperative double page spreads featuring the various Kelvinator refrigerator features.

Pittsburgh, Cincinnati, Cleveland, Newark, Philadelphia, and St. Louis are at present carrying this copy.

In each instance, eight dealers in the district use space in the double pages, paying cooperatively with the factory for the lineage.

Each individual advertisement emphasizes one Kelvinator feature. The stressed points are: the built-in thermometer, for "visible cold"; economy of operation; beauty; five year protection plan; easy removal of ice cubes from rubber trays; other convenience features; dependability; and low original purchase cost.

Dealer signatures are rotated during the series, which ends in July, near the end of the peak selling season.

The campaign was planned by S. C. Mitchell, director of advertising and sales promotion, in collaboration with Geyer, Cornell, and Newell, Inc.

1,500,000 Pay to See FHA Homes Show

WASHINGTON, D. C.—With 36 National Home Shows still in the offing, over a million and a half people have paid admissions to the 24 shows held since January, FHA reports show.

Since the first show, which was held in Baltimore, Jan. 4-11, home planning, construction totaled $28,624,941; those ances, and home financing have been explained to the visitors, with the result that real estate dealers, exhibitors, and the building industry have all received real and tangible benefits, FHA Administrator Stewart McDonald states.

Over two million dollars in immediate sales were made by exhibitors in 10 shows alone, he says.

Reports from 17 shows held in class "A" cities, show that insured modernization loans amount to $2,234,157. Insured mortgage loans for new home construction totaled $28,624,947; those for purchase of homes and refinancing of old mortgages, $10,677,686; other loans, purpose not recorded, $784,500. This makes a total of potential business under FHA's program of $42,-321,284, Mr. McDonald says.

Votes on Amateur Radio Show Bring New Names

BUFFALO — Sponsorship of two weekly radio programs broadcast each Sunday over WBNY, a 100-watt station here, is the promotional activity which Less Wheeler, refrigeration and radio dealer with two stores in this city, is using to increase 1936 sales.

With the opening broadcast held April 19, the dealer-sponsored programs include an amateur hour for children, broadcast Sunday noon, and a 30-minute evening program called the "Nine O'Clock Show," in which previews of current motion pictures are featured.

Miss Ruth Ward conducts the amateur hour broadcast in which prize winners are determined by radio audience vote, telephoned or mailed into the store. These votes give the dealer new prospect names for his mailing list, and for follow-up calls.

Broadcasts originate from a studio which has been set up on the second floor of Wheeler's main store, where accommodations to seat an audience of 225 persons are provided.

Sidles Co. to Distribute Superfex Line

LINCOLN, Neb.—Sidles Co., electric refrigerator distributor here, has added the Superfex oil-burning refrigerator to its line, reports Norman E. Olds, advertising manager of Perfection Stove Co.

The franchise will cover eastern Nebraska and several counties in Iowa, territory which is covered by nine wholesale warehouses.

This franchise was formerly held by R. S. Proudfit Co., which recently gave up the appliance business.

Two Gibson Customers Buy 20 Carloads

GREENVILLE, Mich.—Twenty carloads of refrigerators, consigned to two customers, were shipped from the factory of the Gibson Electric Refrigerator Corp. here recently, reports L. E. Taufenbach, sales manager.

Factory shipments during the month of April were three times greater than they were in April, 1935, states Mr. Taufenbach.

FOCUSING ON REFRIGERATOR SALES

● It is difficult to sell refrigerators on generalities. Specific qualities are of most interest and of greatest influence on prospects.

If you are fortunate enough to be selling refrigerators using Dry-Zero Insulation, you will find this little folder full of some of the most specific, useful and effective information you have ever had.

This colorful folder is designed to hand to your prospects and it tells in a clear, simple way some of the most important things about refrigerator efficiency. You can use it every day in your selling. Your prospects will find it a helpful gesture on your part.

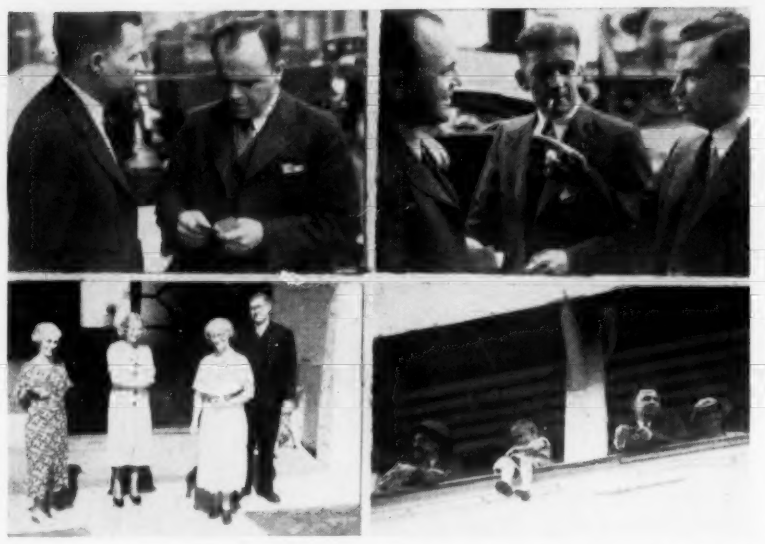
How Dry-Zero Insulation Saves

Among other things, it explains how Dry-Zero Insulation in your refrigerator saves from 30c to $2.00 per month in cost of operation. You can have copies free, but those who have used it are eager for more copies and the supply is limited. So act quickly.

Just write on your business stationery, mentioning the refrigerators you sell, to Dry-Zero Corporation, Merchandise Mart, Chicago, or 687 Broadview Avenue, Toronto, Ontario.

DRY·ZERO
REG. U.S. PAT. OFF.
INSULATION
The Most Efficient Commercial Insulant Known

Some Sydney Refrigeration Men



Upper left: Ed Wilcox, Kelvinator (U.S.) export manager, and Frank Hansen of F. C. Lovelock, Ltd. Right: Mr. Hansen, Eric Ebeling, refrigeration manager of Dangar, Gedye & Co., Kelvinator dealer, and Mr. Wilcox. Lower left: E. Hallstrom, manufacturer of kerosene-operated refrigerators, and three members of his family. Right: Ed Wilcox leaves.

(*Continued from Page 6, Column 5*)

chest models took on the market—relative to the merits of the chest-type design, and broadcast them all over Australia), he is going into the manufacture of the more conventional design of refrigerator, with front-opening door, in order to appeal to new markets.

As a matter of fact, he has an eye on the American market, and has had correspondence with one of the large mail-order firms which has suggested that he experiment with the "upright," or conventional model as the one most easily saleable in the United States.

Cabinets in this new line will be of galvanized steel to insure against rust. They will be sold on a 52% discount through 10 distributors and approximately 750 dealers in Australia. The same two-year guarantee will apply. As in the case of his chest models, the unit is shipped separate from the cabinet.

In addition to servicing all his own machines, Hallstrom services and reconditions the Crosley Icy-Ball units still in use, charging a flat rate of 50 shillings per job.

* * *

No Credit

Conceded by most authorities on Australian refrigeration is the assumption that Hallstrom has made more money out of refrigeration than any other single man on the continent.

He works entirely on a cash basis, paying for everything he buys immediately (including a three-year renewal subscription to ELECTRIC REFRIGERATION NEWS). Likewise, all his refrigerators are shipped sight draft bill-of-lading.

Mr. Hallstrom entertained us at dinner in his beautiful home, where we met his charming family, admired the view, studied his mammoth collection of Australian birds, and looked over his new outdoor swimming pool and the combined ballroom and art studios he is constructing for his son and three daughters (which should give you something of an idea about what he is doing).

* * *

Quality Outlets

WILLIAM QUEALE, managing director of Kelvinator Australia, Ltd., is building for the future. Not that his business isn't good now. The point is that he is preparing for a much bigger business some five or six years hence.

How is he going about this preparation? By granting Kelvinator franchises to the biggest, best established mercantile concerns he can line up. Right now volume isn't so essential to him as getting Kelvinator established as the refrigeration line sold by Australia's best-known stores.

Hence, when refrigeration becomes less specialty selling and more merchandising in Australia, Mr. Queale will be all set.

* * *

Kelvinator Australia

For nine years Mr. Queale and his associates have been selling Kelvinator refrigeration in Australia. Since the high, practically prohibitive tariff policy has been in force, Mr. Queale has also been partly manufacturing and entirely assembling Kelvinator equipment in his factory at Adelaide.

Mr. Queale was kind enough to meet us at lunch and spend an afternoon with us in Sydney, so we didn't make the trip down to Adelaide to see his plant. His manufacturing policy, he states, can be defined about as follows:

"If Kelvinator can make this part better than we can, let's import it."

He imports Kelvinator sales promotion and training material as well as Kelvinator parts. His organization is run along strict specialty selling lines. In Adelaide he operates his own commercial sales crew. Distributors and dealers function elsewhere.

Although Mr. Queale is a calm, dispassionate man, he's pretty close to being excited about the 1936 Kelvinator models; and has arranged to study their manufacture in the Kelvinator plant in Detroit.

He has extensive interests in addition to refrigeration. Two radio broadcasting stations are under his control. He directs the Australian distribution of ABC washers and Stromberg-Carlson radios, and is looking forward to air conditioning (already he is gathering his organization for this new field, and has several engineers in training).

Mr. Queale also has a finger in the Australian government, and is on a Joe-and-Bill basis with Prime Minister Lyons.

* * *

Ed Wilcox—Right Guy

Before going any further with this little study of Kelvinator in Australia, we'd like to take time out to sound a few words of praise for the astute and congenial young man who is the export manager for Kelvinator Corp. (U.S.A.)—ED WILCOX.

Ed headed the delegation which welcomed the writer to Australia and, in turn, we saw him off on his boat to New Zealand. Seeing quite a bit of him during our stay in Sydney, we had an opportunity to watch him work, and admire him in action.

Successfully handling relations with both Kelvinator Australia and Electricity Meter (which makes Leonard, as you should recall), Ed is also a power among the distributing organizations which are responsible for putting across each line in Australia.

He is doing a real job over there—as he is elsewhere in the world, no doubt—and as a result of his efforts, more than two-thirds of all the electric refrigeration equipment sold in Australia is Kelvinator-designed.

* * *

Ebeling and Company

Another "cove" (as the Australians say) who helped the editor see Australia was ERIC EBELING, manager of the electric refrigeration division, Dangar, Gedye & Co., which has the Kelvinator franchise for New South Wales.

Mr. Ebeling, a prominent amateur swimmer, is a member of the famous volunteer life saving corps of Sydney's capacious Bondi Beach. While undertaking to show us the better known beaches around Sydney, he took casual occasion to point out to us the "flats" (apartment houses) and food stores which are Kelvinator-equipped. Evidently the saturation is pretty high, for we seemed to be rubbernecking constantly.

He estimates his organization has installed 2,000 household and 1,200 commercial Kelvinator jobs. Also he pointed out to us a number of spots in which old Nizer machines are still running, as well as the mammoth new Wynward office building (which is entirely air-conditioned by Carrier) where a large Kelvinator commercial installation is being made.

Dangar, Gedye covers the cities and hamlets of New South Wales like a blanket. Their dealers are visited regularly by the firms "travelers." For years Kelvinator has been one of the big factors in this market, particularly on the commercial side, and among the "flats" (which business—all multiple systems—has been highly profitable).

In Sydney Mr. Ebeling runs a "team" (four at present, more during the season) of commercial salesmen. Household business in Sydney has been turned over to the leading department store, David Jones, in accordance with Mr. Queale's program.

* * *

Electricity Meter

Easily the biggest manufacturer of electric refrigerators in Australia is the Electricity Meter Manufacturing Co., which produces 60 per cent of all the electric refrigerators sold in the Dominion. Its organization is as follows:

PARENT COMPANY:

ELECTRICITY METER & ALLIED INDUSTRIES, LTD.

Paid up Capital: Approx. £400,000.

This company controls:

Electricity Meter Mfg. Co., Ltd. A manufacturing unit with works at Waterloo, Sydney. Paid up capital: £300,000.

New System Telephones Pty., Ltd. Distributing unit with branches at Sydney, Melbourne, and Adelaide. Paid up capital: £100,500.

Manufactures and distributes "ElectrICE" and "Leonard" Refrigerators through every State in Australia. Also manufactures and distributes Philco Radio in Australia.

New System Telephones (originally formed to sell inter-office communication service, hence the outgrown name) is probably the largest selling organization in Australia handling refrigerators and radios.

* * *

Genesis of Emmco

Electricity Meter Manufacturing Co. (known locally as "Emmco") was organized by two German craftsmen, J. K. SCHARTL (now Technical Director of the company) and E. K. SCHULZ (now a Director).

First they saw to it that a prohibitive tariff was placed on imported watt-hour meters, then they went to work manufacturing meters which approximated the General Electric line.

They cornered the Australian market (which they still control).

Household refrigeration looking like a good possibility to them, they began pirating the Kelvinator line—and with poetic justice copied perhaps the most unsatisfactory Kelvinators ever put out in America!

Kelvinator's highly successful export manager ED WILCOX, discovered what was going on, put them wise to the fact that for three years they had been copying a "lemon" and suggested a patent-right arrangement, which was adopted.

Emmco now manufactures the Leonard line in Australia (which, with different nameplates and hardware, is also the ElectrICE, the Genelex, and certain private brands).

From the Detroit headquarters of Leonard come drawings, blueprints, working models, and some parts to the Emmco factory. The day we arrived at the Emmco plant, Messrs. Schartl and A. A. McCullagh, chief refrigeration engineer, were unboxing the first 1936 Leonard machine to reach them.

* * *

Self-Contained Plant

Australian manufacturers are inordinately proud of their factories, and were extremely anxious that the writer carry back the news to America that they, too, know how to manufacture machine products with precision, accuracy, and economy.

Of all the plants I tramped through, Emmco undoubtedly had the biggest, and was the nearest approximation to an American line-production operation.

Fact is, the Emmco plant is more self-contained than most American refrigeration factories. Emmco has its own foundry, makes its own electric

(*Concluded on Page 10, Column 1*)

Emmco Heads Study Leonard Plans

Officials of Electricity Meter Mfg. Co., manufacturer of "Leonard" refrigerators in Australia, study the issue of the News containing the four-page Leonard insert. Left to right: J. K. Schartl, J. I. Carroll, Ed Wilcox, Kelvinator export manager; J. McFarlane, J. Bryden-Brown, and R. H. Butler.

Kelvinator & Emmco Plants in Australia

The modern new plant of Kelvinator Australia, Ltd., Adelaide. William Queale is managing director.

Offices and plant of Electricity Meter Mfg. Co., Sydney; 60% of the Dominion's refrigerators are made here.

Unusual Protection

Joe Schartl, technical director of Electricity Meter, pastes a label on a boxed unit, designed to insure its careful handling in transit. The label reads: "Please help your Australian fellow-workers by delivering their product undamaged." The label underneath urges workers to "Support your own Australian industries by handling this case carefully."

Salesman Must Understand His Sales Story If He Expects to Make It Clear to Prospects; Presentation Should Be Made Logically

"The Sales Story," Volume 2 of "The Knack of Selling More" (3 Volumes). Author: Burton Bigelow. Publisher: McGraw-Hill Book Co., Inc., New York City. Pages: 145. Price $1.50 (Set, $4). Review by T. T. Quinn.

THIS book, volume two of a three-volume series, is mainly concerned with helping the salesman get his sales story across.

The most important factor, of course, in any sales story, is getting your meaning across to your prospect—in other words, making your meaning clear. There is a knack of making your meaning clear, the author says, just as there is a knack of making the right approach, and a knack of staying in after you get in.

Must Have Clear Understanding

First requirement of making your meaning clear, he adds, is to be sure that it is clear in your own mind. You can't convey a clear understanding unless you possess one.

The second factor is to present your story in a natural order of points. The salesman for an electric refrigerator, for example, demonstrates his machine from the outside toward the inside, in the natural order in which it would be observed in looking it over.

He isn't compelled to demonstrate the refrigerator in that way. If his experience shows that starting with the freezing unit and working outward is the better way to demonstrate, there is no objection to using the inside-outside order instead of the outside-inside order.

Regular Order Necessary

An important point, says the author, is to realize the need for regular order, and, having adopted the sequence, to adhere to it.

Having adopted some logical order for first presenting your story, be sure to present every point, the author cautions. Follow your story step by step. Be careful to omit nothing—none of the steps, none of the links.

Omit one of these steps and you leave a gap in the meaning—a gap which the other man's mind cannot leap across. As a result, he is confused, he fails to follow you in your reasoning, and consequently he does not arrive at the conclusion at which you arrive.

Skip Important Points

Of course, the hardest part of following this suggestion is the fact that we are not conscious of all the steps in our thinking. When we begin to tell our story to another man, we unknowingly skip certain essential steps, without which meaning cannot be made clear.

We are all guilty of expecting others to accept our conclusions, without having gone through the reasoning process which we went through to reach those conclusions. If we wish others to understand and agree with us, we must reenact our whole thinking process as we present the problem to them for mental mastication.

It is impossible for a prospect to act upon your suggestion, the author says, until he understands your meaning. Experience shows that there are many valuable knacks which aid in making meaning clear. It is essential, he adds, that the story be presented in a clear, logical manner, giving the points step by step, and omitting no important links.

Present Major Alternatives

It will speed up understanding to present all major alternatives, giving your reasons for selecting one plan and rejecting all the rest. The human mind thinks in pictures—so concrete phrases will make more impression than abstract ones. Relate your whole story to the prospect's wants and desires—and do it so clearly that he doesn't have to ask: "What does that mean to me?"

"Answer that question before it is asked," the author urges.

Explain and illustrate all general statements with examples, the author advises—for examples quickly reduce theory to practice and interpret the general in terms of the specific. Present the new and unfamiliar in terms of the old and familiar.

Don't be afraid to repeat your ideas in new settings, new aspects, and from new angles—for repetition is a powerful aid to understanding. Visual aids help, too, the author says, for, in the case of most prospects, the eye comprehends more quickly than the ear, and what is *seen* by the eye is more clearly understood and better remembered than that which is *heard* by the ear.

Clearness of the prospect's understanding should also be tested by frequent rehook questions, phrased: "Have I made it clear?" These questions, says the author, can be used to test clearness from the beginning to the very last sentence of the sales interview.

Getting your points across to the prospect is one thing—getting them believed, however, is quite another. And the author has several good tips for the ambitious salesman in this respect, also.

"When you make a general claim or assertion about your goods," he says, "if the claim or assertion seems likely to sound exaggerated because it does not check with the prospect's previous knowledge, experience, or belief, make a concession to the prospect's skepticism by admitting the seeming evaggeration of the claim."

Our refrigerator salesman, for example, would say:

"It may seem hard to believe, because the reason for it is not visible to the eye, but this refrigerator costs you less to operate than any other leading make on the market."

Back up claims with specific details, says the author. Who? What? Where? When? How? The prospect wants to know. For example, the refrigerator salesman could cover these points as follows:

"(When) Last July (Who) John Macymaker's, leading (Where) New York City department store, tested (What) 15 leading makes of refrigerators for nine days. Results show that the Blank refrigerator operated at less cost for electric current than any other refrigerator tested."

Proof of Claims

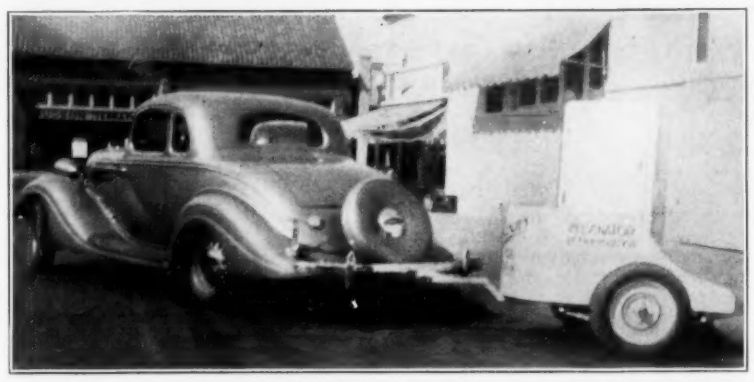
Claims made by the salesman must be verified by direct evidence by the testimony of qualified users, or recognized authorities, documented so that its authenticity cannot be reasonably questioned, the author says. If it should happen that the prospect does not recognize and respect the standing of the witness, then it is up to the salesman to identify, qualify, and build up the witness in the prospect's eye, before quoting the testimony.

Getting back to our refrigerator salesman, his method in this case could well be as follows:

"Here is the photostatic copy of the original letter of the well-known testing institute of the John Macymaker Store, giving the exact results of the test, and confirming the fact that this refrigerator headed the list so far as economy of operation is concerned."

Try out these few tactics on your next sale, the author advises. See how much more effectively you improve your plan. Notice how much more quickly your prospects begin to believe what you say. Salesmen who once try an organized method, the author says, never go back to the hit-or-miss method.

A Chariot in Modern Style



For use in delivering, demonstrating, and advertising Kelvinator electric refrigerators, Peterson's Creamery of Tracy, Calif., uses this small chariot-type trailer. It will travel 50 miles an hour.

Thanks a Million!

To All Stewart-Warner Refrigeration Dealers

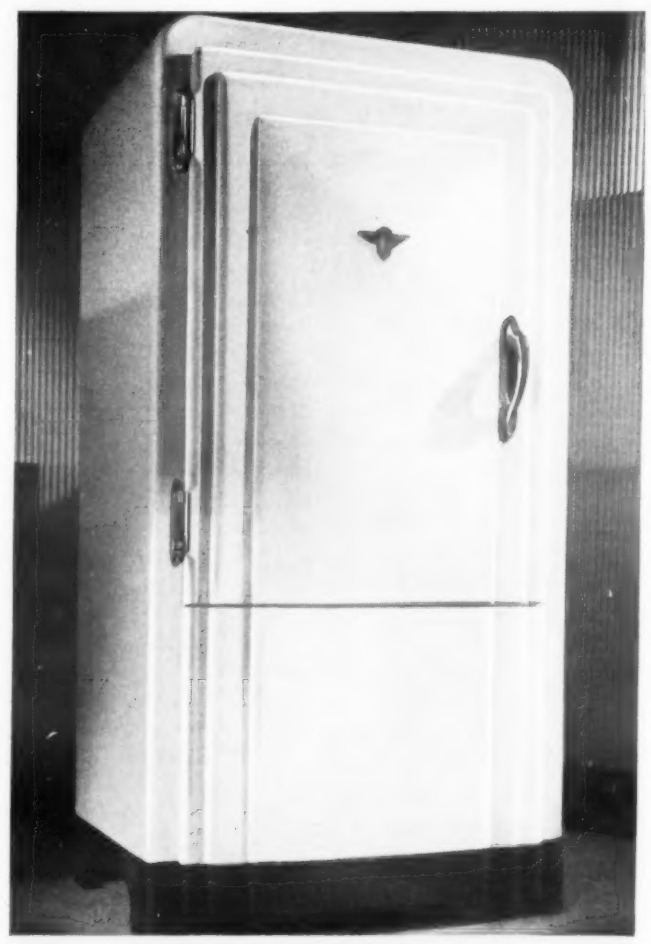
FOR RECOGNIZING THE "HOT LINE" OF 1936 — AND DOUBLING OUR SALES

You're giving Mrs. America more for her money— and smashing sales and profit records doing it

WE offer our sincere thanks to all you refrigerator dealers whose judgment led you to take on the Stewart-Warner franchise this year. Your fine cooperation in capitalizing this line has enabled us to break all past records, with every month running better than 100% ahead of the same period last year. It's a record we can all be proud of—and one we thank you for helping establish.

To all members of the Stewart-Warner dealer family, we pledge that we'll continue to do all we can to help you go to town with Stewart-Warner—and continue to use this added volume to give you added value in Stewart-Warner products.

The New Stewart-Warner has all it takes to win any housewife. There's SAV-A-STEP, the swinging triple-shelf that turns rear space into get-atable front space. It saves steps, saves current, and gives as much easy-to-reach space as refrigerators costing $25 to $50 more. And there's SLID-A-TRAY. And



the current-saving, service-saving Twin-Cylinder Slo-Cycle unit. And the *optional* Stewart-Warner 5-Year Protection Plan. And many others it would pay you to know about.

The Stewart-Warner 6% Non-Recourse Plans Administered by C. I. T.

In addition to a great product, Stewart-Warner has given you a sales plan of outstanding value. As soon as it became apparent that the F. H. A. finance plan was to be withdrawn, Stewart-Warner dealers were given non-recourse and no-down-payment plans that enabled them to finance their sales expediently through the nation-wide C. I. T. organization, whose 144 branches stood immediately ready to serve them.

We have every confidence that with this ideal set-up you will continue to maintain your splendid record throughout the peak months of the season that are still ahead.

Stewart-Warner Corporation
Chicago, Illinois

STEWART WARNER

Australian Public's Demand for Stylish Cabinets May Bring Export Possibilities

(*Concluded from Page 8, Column 5*)

motors, expansion valves, and temperature and pressure controls.

For the standard models and the commercial compressors (Emmco manufactures a limited line of sulphur dioxide and methyl chloride machines, and is contemplating the production of Freon units), as well as the commercial coils, Emmco manufacture is completely self-contained.

For the de luxe household jobs, however, panels and porcelain-enameled evaporators are imported. Because the turnover is too low to permit amortization of expensive tooling, Australian manufacturers cannot go in for the modernized streamlining so popular nowadays in cabinet designing, so it becomes necessary to import panels.

(Right here is an indication of a trend toward the resumption of the importation of American refrigerators and automobiles—a trade which practically ceased with the passage of high tariff restrictions by the Australian government a few years back. The people of Australia definitely like streamlining, which requires extra-large stampings and, hence, production tools which Australian manufacturers cannot afford to buy).

* * *

Friends of Emmco

Last year J. BRYDEN-BROWN, a director of Emmco, visited us at our office in Detroit. He was accompanied by his son, and the two of them were on their way around the world.

It was a real pleasure to see him again. Mr. Bryden-Brown was more than impressed with the new home of ELECTRIC REFRIGERATION NEWS, saying that he found nothing to equal it anywhere on his trip!

In previous years we had enjoyed visits from A. A. McCullagh, refrigeration engineer, and R. W. KENNELL, radio superintendent, who were most cordial to us on this trip.

Mr. McCullagh, together with FRANK HANSEN of F. C. Lovelock & Co., and ERIC EBELING of Dagyar, Gedye & Co., took charge of us during our stay, and saw that we didn't get lonly. Mr. Schartl took us out to see kangaroos and wallabies and koala bears (see pictures), and Mr. McGullagh took us back into the mountains and "bush" to see the world-famed Jenolan Caves.

Also had an interesting visit with General Manager J. I. CARROLL, a most brilliant man. He estimates the saturation of Australia's household market at 12½%. No accurate statistics are available.

Emmco's entire board of directors and factory personnel gave the writer a luncheon, the following men attending:

J. I. Carroll, general manager, J. M. Macfarlane, chairman of directors, J. Bryden-Brown, director, J. K. Schartl, technical director, W. A. Elder, director, E. K. Schulz, director, F. Layer, works manager, C. W. Schartl, assistant works manager, A. A. McCullagh, refrigeration engineer, R. J. Kennell, radio superintendent, J. T. Fitz, secretary, J. W. Galbraith, chief draughtsman, A. E. Gibbes, technical department, W. Litvensky, refrigeration department foreman, G. Wells, motor department foreman, Bert Brown, refrigerator department foreman, and A. Paton, foreman cabinet maker, all of Electricity Meter Mfg. Co., Ltd.

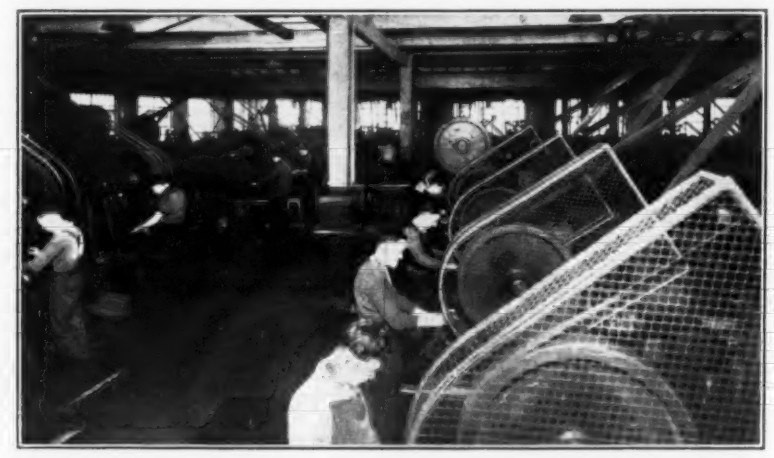
R. H. Butler, director, New System Telephones Pty., Ltd.; R. M. Davies, assistant general manager, New System Telephones Pty., Ltd., Sydney; Frank Hansen, general manager, F. C. Lovelock, Ltd., Sydney.

Australian Manufacturers Boast of Their Modern Machines and Methods

Views in Emmco's Sydney manufacturing plant. Upper left: Refrigerators moving down the assembly line, just as in any American plant. Right: A view in another section of the plant, where condensers are made. Lower left: Mr. McCullagh and Mr. Schartl unbox and examine the first 1936 Leonard unit to arrive from America. Right: Some of Emmco's commercial condensing units.

Refrigerator assembly floor of Electricity Meter Mfg. Co., Sydney, showing some of the fitting benches on which the sub-assembly operations are carried out. To the right are the elevated assembly lines, along which commercial units are completed and tested. On the third bench from the front is a jig for testing the lift of the compressor valves.

One end of the press room. The large toggle presses in this line are used for blanking and drawing operations in steel, copper, and aluminum for the pressed metal portions of meters, refrigerators, and radio equipment. They are capable of exerting pressures up to 140 tons. Behind the presses is a battery of muffle furnaces for heat treatment and annealing work.



Looking across the plant between two rows of presses. These machines are used for the numerous trimming, punching, and bending operations in the pressed steel portions of Emmco meter, refrigerator, and radio products. All presses are equipped with safety grids for the protection of operators. Throughout the factory, every precaution is taken to insure employes' safety.

Display Truck Makes Effective Contacts For Fones Bros.

LITTLE ROCK, Ark.—Valuable contacts and effective direct advertising that resulted in an over-all volume increase were obtained as a result of an electrical display truck sent out by Fones Brothers Hardware Co., distributor of Westinghouse household appliances, reports Emmett Massey of the distributorship.

Power unit of the truck is painted gold to represent the Golden Jubilee models of Westinghouse refrigerators. Inside is set up a complete line of household appliances and radios, which are connected to electric circuits by means of extension cords, and demonstrated to the public in front of the various dealerships.

The truck is managed by distributor specialty salesmen, the manufacturer's representative, and a negro chauffeur.

During a tour, all dealers of major appliances are notified of the truck's schedule, and a program of newspaper and hand bill advertising suggested for the general public. Dealers are advised to send personal invitations to good prospects for demonstations at certain hours, so that the specialty salesmen may give the best prospects a more personal demonstration.

In the smaller towns where the company does not have an exclusive dealer, the truck is stopped in front of the most logical outlet. The chauffeur, dressed in white cap and coat, opens up the display and checks the electrical connections; one specialty salesman stands by for dealer presentations; and the second contacts all dealers and prospective dealers and accompanies them to the truck.

In one small town, a number of good prospects were obtained by keeping the exhibit open and catching the show crowds as they came out of the local movie at 9 p.m.

Numerous inquiries from persons who had probably depended on mail order catalogues before, concerning hardware, machinery, and electrical equipment, were received in small towns.

In the larger town, the crew spent most of the time on dealer prospects; giving consumer demonstrations, which proved successful in getting increased volume on lines represented, and influencing dealers to carry more complete lines of electrical equipment, the distributorship reports.

An increase in over-all volume and numerous requests for return trips were the results obtained by the distributorship from the truck's trips.

Air-Conditioning Demand By Apartment Dwellers Becoming Apparent

CHICAGO—Increasing demand on the part of apartment house and office building tenants for air conditioning is noted by Delmer R. Rippey in a recent issue of *Buildings & Building Management* magazine.

Building managers are forced to meet competition in this field, and must establish a policy in handling it, Mr. Rippey says.

Best plan, he says, is a plan of gradual installations, to meet insistent demands. This should reduce vacancy, protecting the income and financial structure of the building, without working a financial hardship on the owner.

This plan should not be figured as a capital expense, with no amortization or interest return, he contends. Offering an attractive source of new earning power, the outlay may be amortized within 10 years, he believes.

Merchandising Plan for Refrigerators Equipped with Scurlock Kontanerette Kits

Add the full list price of the Kontanerette Kit, consisting of the Kontanerette, a Beveragette, and a Utility Tub, to the list price of the refrigerator—for example

A $200.00 refrigerator equipped with an S-10 Kontanerette Kit at..$4.95

Making the total list price.....$204.95

The salesman says to the customer:

"Madam, we have equipped this beautiful refrigerator with one of the DeLuxe Kontanerette Kits, the entire unit costing you $204.95.

We have done this for your convenience and accommodation so that you may purchase the Kontanerette Equipment on the installment plan at the rate of just a few cents per month along with your refrigerator, and for the further reason that the Kontanerette, due to its triangular jars actually saves its own cost in refrigeration space, giving you about one-third more storage capacity than you could get with round jars. If you do not buy this equipment, the price of the refrigerator will be $200.00."

The psychology of this selling plan is that the woman appreciates the accommodation of being able to buy this equipment on the installment plan with the refrigerator more than if you were to equip it with inexpensive containers or glass dishes, the value of which she would not appreciate.

* *Approved by Good Housekeeping Institute*

Write for our new merchandising plan on how to sell Kontanerette Kits with refrigerators.

See your distributor or write us direct

SCURLOCK KONTANERETTE CORP.
1477 Mdse. Mart - Chicago

Norge 'Visualizer' Fits Inside Door

DETROIT—To help dealers get across sales points to prospects more effectively, Norge Corp. has made available to its field organization a "refrigerator visualizer," which fits inside the door of the 6-cu. ft. deluxe models, in place of the present door pan.

The visualizer carries a series of sales messages, designed to help the salesman dramatize various points as they come up in his demonstration talk. Placed inside the refrigerator door, it is right where the prospect is most likely to notice it during the demonstration.

WOLVERINE TUBING

Makes Good Refrigeration Better

The best refrigerator is no better than its tubing—and high quality tubing makes a refrigeration installation that much better.

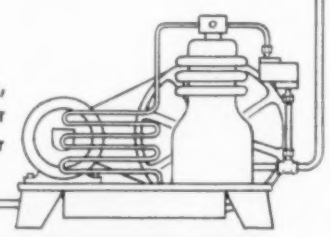
Wolverine Copper Refrigeration Tubing is of a quality that backs any guarantee. Drawn from 99.9% pure deoxidized electrolytic copper, it always meets A.S.T.M. specifications B 68-33.

Furnished plain or electro-tin-plated, it is thoroughly dried, and sealed with the Wolverine "W" to protect against moisture.

Coils may be obtained in compact, heavy paper wrapped packages which keeps the tubing perfectly clean and bright until used. Lengths—25, 50 and 100 feet—as well as sizes are plainly marked.

Copper Water Tubing

For Air Conditioning, Space Cooling, use Wolverine Deoxidized Copper Water Tubing. Large stocks carried for immediate delivery.



WOLVERINE TUBE CO.
SEAMLESS COPPER BRASS & ALUMINUM
1411 Central Ave. Detroit, Mich.
H. M. ROBINS CO., Export

McCORD Refrigeration PRODUCTS

COMMERCIAL EVAPORATORS
DOMESTIC EVAPORATORS
CONDENSERS
METLFLEX ICE TRAYS
SPIRAL FINNED TUBING
AIR CONDITIONING SURFACE

McCORD RADIATOR & MFG. CO. DETROIT

Distributor's Engineer Explains How to Figure Average Kwh. Used by a Refrigerator

By W. L. Holladay, Engineering Manager
The George Belsey Co., Ltd., Los Angeles, Calif.

When this question was first presented to us in 1927, the principal measuring device in use was a recording running-time meter, consisting of a series relay actuating a pen on a circular clock-driven chart. Since the power taken by a refrigerating compressor varies with the back pressure, and since the length of the circular arcs on the chart were difficult to measure, this did not seem like a *good* approach. After all, the customer was rarely interested in how *long* his refrigerator ran; he wanted to know how much it *cost*.

The use of a kilowatt-hour meter of the standard household type seemed an obvious improvement in technique, so we fitted up several General Electric I-16, two-wire, 5-ampere meters in convenient carrying racks, and in response either to the customer's curiosity or his complaint, we would put a meter in the refrigerator circuit for a period of 10 days, multiply the answer by three to get monthly energy consumption, and multiply this by the rate to get cost.

Test Procedure Improved

During the succeeding eight years we took hundreds of such tests, although the technique was later improved by equipping all the meters with dials which, connected to a special gear train, registered 10 times as fast as the standard household meter. This meant that the right-hand dial registered in tenths of kilowatt-hours, and we cut the normal time of a test from 10 to three days.

Last summer, following receipt of factory information indicating rather remarkable reductions in operating cost, it was suggested that we undertake a consistent plan of testing a given number of current model refrigerators in customers' homes each month, so that more accurate, usable sales estimates might be made. Such a plan was put into effect in August.

First, it seemed necessary to choose among a number of popular selling models in order to determine whether any material difference in operation existed; so a list of the eight most popular models was set up, with two tests of each of the two most popular, giving a total of 10 tests each month.

Then it was essential that the customers be chosen strictly at random, in order to get every possible variety of usage. Accordingly, the 10 chosen are the first customers to whom refrigerators have been delivered the month *previous* to the test. This rule was set up to eliminate the extra usage that a brand new customer, proud of his purchase, might be expected to give his refrigerator during the first few days of operation.

Data on Usage

Certain additional information was required in each case for statistical purposes.

The number of persons in each family, the location of the refrigerator (kitchen or back porch), the exposure of the room containing the refrigerator to sunlight or shade, the total usage of electricity from house meter readings, and certain other points of interest were recorded in each case.

Naturally, it has not been possible in every case completely to follow the most desirable routine. Occasional tests were not completed because the family moved, or the refrigerator was changed to another model; but at the end of seven months we have obtained 69 trustworthy cases of genuine customer usage, and the results of these tests are highly illuminating.

It is important to note that every completed test is listed in these data; none has been removed because of "unusual operating conditions," a higher meter reading, or for any other such reason.

Monthly Averages

The number of tests completed each month and the average energy consumed by months are shown in the following table:

Month	No. of Tests	Kwh. per Month
August, 1935	9	28.2
September	8	19.8
October	11	18.7
November	10	20.2
December	9	14.4
January, 1936	12	16.8
February	10	17.0

Considerable variation is noted, of course, and some analysis is necessary to determine the *average* monthly energy. This analysis is:

It is observed that the summer and early fall months show the highest figures. Can we find some way of equating results to season or temperature?

Southern California homes are not generally furnace heated. Almost without exception, no home in this area is heated after the family goes to bed at night. Therefore, it is conceivable that official Weather Bureau figures of mean monthly (day and night) temperatures might be applied as the variable of the equation. If this be done, the data read:

Month	Mean Temperature (x)	Kwh. per month (y)
August, 1935	74.0°	28.2
September	69.8°	19.8
October	67.0°	18.7
November	60.8°	20.2
December	59.4°	14.4
January, 1936	59.4°	16.8
February	56.5°	17.0

On the assumption that the curve drawn from these data is a straight line, it passes through the point 63.8, 19.3. In other words, if the temperature were 63.8°, we should expect to get a test result of 19.3 kwh. per month. It is easy to determine the slope of the line from the formula:

$$m=\frac{E\,(y-y_2)}{E\,(x-x_2)}$$

where x_2 and y_2 are the points at the center of the line, (63.8, 19.3), and x and y are the experimental figures. The slope is found to be

$$\frac{20.6}{38.5}=.535$$

Knowing one point and the slope of the line, the equation is determined as follows:

$$(y-y_1)=m(x-x_1)$$
$$y-19.3=.535(x-63.8)$$
or $y=.535x-14.8$.

Using this formula, and knowing that the mean yearly Los Angeles temperature is 62.7°, we find our expected average monthly energy is:

$y=.535\times62.7-14.8=18.7$ kwh. per mo.

Stated verbally, this formula says that each increase of 1° in average temperature increases the energy consumed by about one-half kwh. per month. It also says that at 28° the refrigerator will consume no energy at all. If the cabinets are all set for about 40°, why shouldn't the machine quit at 40° instead of 28°? The answer is, of course, that some ice freezing is involved in customer usage, and that the line is probably not straight over more than a comparatively narrow range of temperatures. In other words, if a refrigerator were used in a continuous 100° room (conceivable in some desert locations for brief periods) the actual kwh. per month would be higher than given by the formula.

It is now possible to estimate the expected consumption each month by substituting the 54-year average mean monthly temperature in the equation. The results are:

Month	Mean Temperature	Expected kwh.
January	55.1°	14.7
February	56.0°	15.2
March	57.6°	16.0
April	59.8°	17.2
May	62.3°	18.5
June	66.5°	20.8
July	70.4°	22.9
August	71.2°	23.3
September	69.5°	22.4
October	65.3°	20.1
November	61.5°	18.1
December	56.8°	15.6

It will be noted that these temperatures do not agree exactly with those given in the second table for the corresponding months. Temperatures in the second table are for the actual month of test; and in the last table the 54-year average is used.

It may be observed also that the experimental data do not agree in every case with the last table. It is the writer's belief that the correlation is as good as can be expected considering the variation in usage, in family size, and in other factors. It is noteworthy that the highest single test result was 37 kwh. (August, family of 7) and the lowest was 10 kwh. (January, family of 2).

Comparative Efficiency

We were interested in knowing whether Monitor Top or Flatop models were more efficient. We found that:

36 Monitor Tops averaged 18.7 kwh.
33 Flatops averaged 19.3 kwh.

so for all practical purposes the two designs have the same efficiency.

We are next interested in the comparison of refrigerator size to energy consumed. Results were:

14 4-cu. ft. tests 18.3 kwh.
22 5-cu. ft. tests 18.2 kwh.
12 6-cu. ft. tests 18.7 kwh.
21 7-cu. ft. tests 20.4 kwh.

It is apparent that from the number of tests here represented, no conclusion can be drawn as to size except that it does not seem to make much difference. The engineer who, after running a series of careful no-load laboratory tests, reduces his final results to "kwh. per cubic foot" is therefore merely kidding himself. The constant is kwh., not kwh. per cu. ft.

The results of noting size of family compared to energy really seem to get somewhere, although they will be more conclusive as the number of tests increases.

No. of Tests	No. in Family	Kwh. per month
39	2 or 3	17.5
22	4 or 5	20.2
4	6 or more	25.8

(Number in family not reported in four tests.)

Calculations show that the average General Electric refrigerator operating unloaded in a 63° room would consume 14.1 kwh. per month. We might tentatively assume from the use of this figure in conjunction with those above that each individual using a refrigerator adds on an average of 1.4 kwh. per month, or expressed in another way, 10% of the unloaded cost of operation.

In other words, if a refrigerator, operating unloaded in a 70° room* (typical conditions in a furnace-heated house) takes 19 kwh. per month, this refrigerator, used by a family of four will take

$1.40\times19=27$ kwh. per month

Such calculations on relation of size of family to usage of electricity should be used only as a guide, since the data so far are insufficient to draw conclusions of any great accuracy. Nevertheless, we think that this is a possible answer to the engineering argument as to what constitutes "load" in a refrigerator, and it may be that the field test approach to the problem, as distinguished from the laboratory test, may finally solve it.

*About equal to the day-and-night July mean in Los Angeles.

Southern Division Has Lead in West Penn Frigidaire Sales

FAIRMONT, W. Va.—Employees of the southern division of the Monongahela West Penn Public Service Co., headed by Carl Sommers, topped their quota by 10% to take the lead in the annual Frigidaire spring campaign, the last reports showed. For the entire territory, 50% of the $100,000 quota had been attained.

Final standings for the contest will be compiled this month.

Under the direction of Commercial Manager Grady Whitman, Elkins division was in second place with 75% of quota, and Clarksburg, although reporting the highest volume of sales, took third place in the percentage standings with 55.7%.

Morgantown and Fairmont put on a seesaw battle for fourth place the first two weeks of April, the Monongahela-Preston area finally coming out on top by a slight margin.

The Panhandle division was in sixth place according to the latest estimate.

N. M. Jackson, of Clarksburg, was in top place in the individual competition, with sales of $4,737.50. Others who ranked high were Hollis Powell, of Fairmont, with $4,019.65; Lee Grimm, of Elkins, $3,035; E. R. Hooper, of Weirton, $3,026.15; Glenn R. Dutton, of Clarksburg, $2,776.41; Homer Deem, of Parkersburg, $2,682.50; J. S. Killian of Grafton, $2,295.14; and Thomas Torch, of Morgantown, $2,287.75.

Other high ranking salesmen are: D. F. Zirkle, of Parkersburg; T. M. McBroom, of Clarksburg; W. C. Weaver, of Richwood; R. C. Brown, of Fairmont; and V. O. Moore, of Shinnston.

New G-E Bulletin Gives Averages on Appliance Current Consumption

SCHENECTADY—Between 30 and 50 kilowatt-hours per month is the national average kilowatt-hour consumption for the operation of an electric refrigerator, 128 per month for a range, or 1 per person per day, and 2¼ per month for a dishwasher, according to an operation-cost estimate sent out by General Electric to assist in the rural electrification program.

The four-page bulletin illustrates a number of uses for which electricity may be economically employed on the farm and in the farm home, explains simply what a kilowatt-hour of electricity is and what it will do, and lists 50 representative farm applications, giving national average kilowatt-hour consumption for each.

By multiplying the average consumption figure by the electricity rate in his district, a farmer may get a fair idea of what the cost of operation would be for a particular household or farm appliance, the pamphlet says.

Other household appliances and their average consumption listed are: washing machine, 2 per month, or ⅓ per person; fan, 1 for each 8 to 10 hours of operation; iron, 4 per month (1 per person); ironing machine, 8-10 per month; lighting, 25 per month, including small household appliances; oil-furnace (electric control), 200 to 500 per year; all-electric radio, 3½ to 12 (average 8) per month; sewing machine, 1 or less per month; vacuum cleaner, 3 per year; and water heater, 150 to 600 (average 340) per month.

Ways in which a farmer may make profitable use of electricity are represented in the pamphlet by the farmers' "Handy Andy," and the farm wives' "Handy Annie," who work through electric appliances to relieve the burden of farm-work.

WHEN HE'S HOT . . . AND TIRED . . . AND THIRSTY . . .

YOU CAN MAKE SOME *Easy Profits*

There is money to be made in electric water coolers during the next few months. When people are hot and tired, they get thirsty—and impatient at antiquated, inefficient coolers. ¶ There are going to be electric water coolers sold right in your territory; and you might as well be the one to profit. Some will likely come in unsolicited—easy sales that will drop in your lap. There will be others that will require a certain amount of selling. All these sales and profits, however, can be obtained with comparatively little effort—far less than other types of refrigerating equipment—due to the inexpensiveness of Cordley equipment, as well as the recognized need for pure, cool drinking water. ¶ Best of all, cooler business need not interfere with your regular lines . . . not only are these *easy* profits but they are *extra* profits. ¶ Cordley *Electric* Water Coolers are ideal for your purpose. Made by an organization specializing in water coolers since 1889, the electric models have proven themselves efficient and dependable over the past 7 years . . . are small, compact, inexpensive . . . allow you a generous margin of profit and at the same time put you in an enviable competitive position. Fill out the coupon below and find out all the details of the Cordley proposition. CORDLEY & HAYES, 145 Hudson Street, New York, N. Y.

HERE ARE COOLERS THAT CAN MAKE SOME EASY PROFITS FOR YOU

HERE is the coupon that brings full information. Send it in today!

CORDLEY & HAYES, 145 HUDSON ST., N. Y. CITY
Please send us full information on the Cordley dealer proposition.
NAME .....
ADDRESS .....
CITY & STATE .....

CORDLEY *Electric* WATER COOLERS

ELECTRIC
REFRIGERATION NEWS

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Ice Writers Get Themselves Into Another Jam

LAST year a number of letters were received from readers calling attention to evidences of unfair competition on the part of the ice industry. Some wanted to know what we were going to do about it.

The fact that we did nothing about it probably led some readers to believe that the editorial writer was overlooking an opportunity to apply some of the choice blistering phrases which editors delight in using in situations where no advertiser will be offended.

We have taken particular pains to avoid references to the ice industry for several definite reasons which have been explained previously in this column.

Older members of the industry will recall that the early advertisements of electric refrigerators were largely devoted to the disadvantages of ice. The tendency was to use the bulk of the advertising space to tell everything that was wrong about ice instead of selling the advantages of the new method. The "art work" usually consisted of a repugnant caricature of a slovenly iceman and a cake of ice resting in a puddle of water on the kitchen floor.

The error in that method of advertising electric refrigeration was very forcefully pointed out to the top executives of the leading manufacturing companies a little over 10 years ago. From that time on the iceman was completely eliminated from the picture in electric refrigeration advertising. It is no mere coincidence that the sales of electric refrigerators started bounding upward about the same time.

It was also about 10 years ago that several meetings were held at which representatives of the new electric refrigeration industry and representatives of the older ice industry considered their competitive relations. Resolutions were drawn up and indorsed which set forth the ethical considerations affecting competition between the two industries.

The resolutions were duly recorded and forgotten but advertising writers quickly learned that they could not get an O.K. on "iceman copy." The executives did not, and could not, exercise the same effective control over the activities of salesmen. Salesmen did continue to attack their ice competitors and often gave grounds for just complaints of unfair tactics.

It should be noted, however, that the electric refrigeration industry as a whole did direct its advertising into constructive channels and thereby set up standards which were effective as a tempering influence upon salesmen. In other words, electric refrigeration executives could, *and did*, control the *printed* word.

The ice industry, by contrast, has shown its lack of wisdom by breaking out *in print* with half-baked ideas designed to throttle competition.

Having observed this marked tendency of the ice industry promoters to "get their necks out" every time they embark upon a campaign, has encouraged us to continue our policy of non-aggression. As a Kansas City retailer expressed it: "The ice people aren't worrying us much, because we believe that if given enough rope they'll hang themselves."

And that, apparently, is just exactly what has happened, judging from the recent complaint issued by the Federal Trade Commission against the Coolerator Co., probably the largest distributor of ice refrigerators in the country, for the disparaging statements made about electric refrigeration in the Coolerator booklet "Why Ice Is Best for Refrigeration." (For the complete text of the FTC complaint, see page 37 of the May 6 issue of ELECTRIC REFRIGERATION NEWS.)

The Federal Trade Commission is a quasi-judicial body, created to prevent the use of unfair methods of competition in commerce. Established in 1914, few of its orders have been countermanded by the courts. Keeping in mind the purpose and reputation of the Commission, it seems safe to say that the ice people have gotten themselves into a first-class jam and that all of their misguided efforts to prove something against electric refrigerators will play right into the hands of their smarter competitors.

It would seem that the ice industry would eventually wake up to the errors in the strategy of its "intelligence department." Certainly a lesson should have been learned from the experience with F. A. Teigen's writings. He was the bright master mind who wrote the booklet entitled "Cancer, the Potential Penalty of Electric Refrigeration," which was distributed so widely that it became necessary for the medical profession to take cognizance of it. In an editorial in the Aug. 12, 1933, issue of the *Journal of the American Medical Association*, the Teigen claims were branded false and further circulation of the book was protested.

It is dumb enough for a *salesman* to devote his *vocal* efforts to knocking competitive products, but there is at least some excuse for his tendency to get off the track.

The salesman is on the firing line where he is constantly facing competition. The prospect praises the other make just to tantalize him or as a measure of self-defense against sales pressure. Smart buyers goad the salesman into competitive talk for the purpose of getting ammunition to use in beating down the other fellow's price, etc.

The man who *writes* sales literature, however, has time to weigh his words and present his message adroitly. He can approach his problem calmly and should have a reasonable degree of perspective. The man who *writes* a direct attack upon a worthy competitive product may succeed in doing some harm, but he seldom, if ever, does his own product any good.

Letters

Montgomery Ward, Coldspot, Electrolux

R. W. Howard
Radio and Electric Shop
1410 Park Street
Alameda, Calif.
April 30, 1936.

Gentlemen:

I am a subscriber of Refrigeration News and about a month ago, recall having read in your columns that you would list the specifications of all makes of refrigerators and the names of the makers of the different parts found in these refrigerators. The thought flashed through my more or less inquisitive mind—I'll bet they will not tell who makes the refrigeration unit for Montgomery Ward—and you did not... Are you endeavoring to protect General Motors Frigidaire corporation? I also found that you have failed to name the manufacturer of the box (cabinet) used by Cold Spot. Are you endeavoring to protect Norge by any possible chance? It seems to me that since you know so much about the construction of the box and what it contains, you must certainly know who makes it and I believe that the information should be contained in your specifications, because they are certainly not complete the way they are.

Where would I be able to get information on any of the present electrical manufacturers of refrigeration who are experimenting on gas refrigerators?

Why is it that you never do run anything on Electrolux? That refrigerator runs with either Gas, Electricity, Flamo, Butane, Gas (manufactured), Natural Gas or Kerosene. I believe it too, should get some publicity.

I am afraid my letter borders on some touchy subjects and that it will not be very welcome to receive the REAL ANSWERS on.

R. W. HOWARD

Answer: All specifications data on household electric refrigerators published in the April 22 issue of the NEWS was furnished by the manufacturers. Questionnaire forms were mailed to each company, and if the returns were incomplete, a second request was made urging them to answer *all* questions.

Montgomery Ward & Co. failed to answer our question regarding the make of compressor. Sears, Roebuck & Co. failed to answer our question regarding the make of cabinet. If it is true that these items are being supplied by large and well-known manufacturers, then it would seem that the mail-order houses would be materially helped by publicizing that information.

Our own attitude is that if the mail-order houses do not care to accept our invitation to furnish this information (for whatever reason), we do not see why we should go to any special effort to advertise the merits of their products.

Now, regarding Electrolux, we have made repeated efforts to obtain the active cooperation of the manufacturer in order that more information regarding their progress could be reported in the NEWS. Mr. F. E. Sellman, vice president in charge of sales, has invariably countered with the argument that Electrolux is sold only through gas companies and that, therefore, he is not interested in our educational program.

Wants File Complete on Round the World Tour

Mills Novelty Co.
4100 Fullerton Ave.
Chicago, Ill.

Editor:

We have been following your "Round the World" tour in ELECTRIC REFRIGERATION NEWS very carefully and find it both interesting and informative.

The issue in which your story of Honolulu appeared and also the notation that Mills was entering the compressor field has been misplaced and we cannot find it in our files. Would you be so kind as to send us another copy of this back issue, so that we may keep our file up to date.

WALTER TILDS,
Adv. Dept.

Made Several Sales with 1935 Specifications Issue

I am enclosing my check for $1.00 for which please send me copies of the NEWS that contains the specifications of various makes of electric refrigerators.

I consider this copy of *great* value. I wore out three or four copies last year and they helped me to make several sales (Kelvinators).—R. W. Edmondson, 111 Oakland Ave., Huntington, West Virginia.

A Proposal to Qualify Refrigerators by Label

Carol Willis Hyatt
5718 Kenwood Avenue
Chicago, Ill.
May 7, 1936.

Mr. Cockrell:

A friend sent me the editorial page from ELECTRIC REFRIGERATION NEWS of April 29, 1936, in which you comment on the Better Buymanship bulletin on Household Refrigerators. I am very much pleased with your editorial, and I know that Household Finance Corporation will appreciate it.

It is particularly pleasant to know that I won't have to wear down your resistance when I call you for an appointment again. I am engaged at the moment in changing the base of my efforts in behalf of consumers to Washington, D. C. where I shall become a staff member of the Consumers' Project in the Department of Labor. We probably will publish information about household refrigerators some time in the future, and when we do I certainly shall take advantage of your invitation. You gave me more insight into the complicated problems of the industry than you take credit for doing.

I agree with you that the problem of comparing refrigerator prices accurately is almost impossible at present. Price means little to the consumer unless she can learn what is being offered at a given price. It is my hope that electric refrigerator manufacturers will realize in the near future that one of the best ways to prove their integrity is to label their products with what she is getting in performance, cost of operation, durability and repair service at the price she is asked to pay.

I look forward to the pleasure of another visit with you.

CAROL WILLIS HYATT

Historical Material Being Collected for News Issue

York Ice Machinery Corp.
York, Pa.
April 28, 1936.

Mr. Cockrell:

We are enclosing a reprint of an article by Dr. H. Marshall Taylor from a recent issue of the *Southern Medical Journal* which tells something about the life of Dr. John Gorrie, who is generally regarded as the first experimenter to apply mechanical refrigeration successfully (1850).

You may want to add this booklet to your "historical file" on refrigeration and air conditioning.

It is interesting to note that what Dr. Gorrie was really striving to do was to develop an air-conditioning system for hospitals.

J. T. SCHAEFER.

Answer: This contribution to the historical file on refrigeration and air conditioning is especially welcome since we are now actively engaged in collecting data on companies and individuals entitled to credit as industry pioneers. This material will be published in a feature issue of the NEWS early in September.

Other readers who have historical literature, photographs, letters, etc. are invited to contribute exhibits to the permanent file of the NEWS or to loan such material temporarily until reproductions may be made for publication purposes. Great care will be taken to return documents in good condition if so desired.

Specifications Book Will Give Unit Numbers

The City Loan & Savings Co.
Market and Elizabeth Sts., Lima, Ohio
April 30, 1936.

Editor:

This company finances household appliances, having 50 offices, all in Ohio, and do what we think is a large business. Noticing that you are issuing a refrigeration and air-conditioning specification book, which you state will be published May 20, prompts us to ask the following questions:

Will this book contain model and serial numbers of refrigerators by the years of manufacture, similar to the blue book information in the automobile world?

Will these specifications also show cabinet and unit numbers, as well as those models on which unit numbers are unavailable because of sealed units?

As time goes on more and more refrigerators are traded in, and we are requested to finance used refrigerators as well as new. It seems that if such information were contained in the manual that it would be of very useful value to practically all finance companies handling the retail paper on household appliances.

O. P. RASMUS,
Indirect Loan Department.

Answer: The book will contain model numbers of refrigerators by year of manufacture, together with their compressor model numbers. Sealed units will be indicated. Also included will be much other information useful in determining valuations of used refrigerators, such as kind of insulation, exterior finish, cubic-foot size, and exterior and interior dimensions.

Electrolux Specifications

W. W. Guest Hardware Co.
Ryan, Okla.
May 3, 1936.

Editor:

We enclose 25¢ for which please send us one copy of the Specifications Issue of the REFRIGERATION NEWS.

Also wish you would advise where I can secure specifications of the Electrolux job. W. W. GUEST.

Answer: Specifications of the Electrolux refrigerator are not released for publication. However, you might be able to get them by writing Servel, Inc., 51 E. 42nd St., New York City.

Technical Information

I have received your letter in date of March 21 and I am sending you a postal order for two years subscription $9.00 plus $3.50 for a copy of your book entitled "MASTER SERVICE MANUAL published February, 1936.

I will also be glad if you develop as much as possible technical subjects in the REFRIGERATION NEWS. As this is the reason why I enter subscription.—J. VAN DAM, Refrigeration Engineer, 77 rue Duhesme, Paris (8e), France.

G-E Domestic Prices Did Not Include Service Cost

Appliance and Merchandise Dept.
General Electric Co.
Specialty Appliance Sales Division
Nela Park, Cleveland, Ohio.
May 8, 1936.

Editor:

Due to an oversight on our part, prices on our domestic units that we sent to you for your specifications issue did not include the five-dollar service contract, hence all the prices on the sealed units were five dollars too low. This five-dollar service contract is not optional with the customer and must always be included in the full purchase price.

Will you please print a notice to the effect that the prices quoted on our sealed units were five dollars too low? We will appreciate it very much if you will do so.

K. G. ROE,
Commercial Engineering Division

Correction in Compressor Speeds of Norge Units

Norge Division
Borg-Warner Corporation
670 E. Woodbridge Street
Detroit, Mich.
May 6, 1936.

Editor:

Our attention has been called to an error in the specifications of Norge Refrigerators, as printed on page 8 of the April 22 issue of the ELECTRIC REFRIGERATION NEWS. The RPM of Model E-62-6 is shown as 550, and it should be 625. The RPM of Model I-42-6 is shown as 625, and it should be 550. The RPM of Model L-82-6 is shown as 625 and it should be 700.

Will you please make reference to these corrections in as early an issue as you can.

JOHN A. DRAKE,
Sales Department.

Ice Melting Effect on Hotpoints Corrected

Appliance and Merchandise Dept.
General Electric Co.
Nela Park, Cleveland, Ohio
May 11, 1936.

Editor:

In the specifications of the Hotpoint domestic refrigerators we stated that the ice melting effect in pounds of ice per 24 hours for Hotpoint models numbers AP-12 and 15 was 146 pounds of ice for 24 hours. That figure is incorrect. It should be 176 pounds of ice per 24 hours.

Should you ever have occasion to quote these figures again, we shall appreciate it if you will use the latter figure for the capacity of Hotpoint models AP-12 and 15. K. G. ROE,
Com. Engineering Division.

Change of Address

Delmar, N. Y.

Editor:

I have moved from Renesselaer and my new address is Delmar, New York, c/o A. Langenbach. I also want to mention that I enjoy reading the news in the REFRIGERATION NEWS; it has very interesting facts.

PHILLIP R. WOOD.

Full of Information

Parsons Brothers
31-35 E. Washington Ave.
Bridgeport, Conn.

Editor:

Kindly enter our subscription to the ELECTRIC REFRIGERATION NEWS to start at once. We are jobbers of refrigeration supplies and have found the sample copies which you sent us full of good information. S. B. BEARDSLEY.

Lack of FHA Financing Fails to Stop Detroit Dealers; Design & Company Name Are Important

By Winifred Hughes and Eleanor Blum

(*Editor's Note*: To find out current buying and selling trends in the electric refrigeration industry we like to interview groups of refrigerator retailers at frequent intervals. The recent *Detroit News* sponsored electric refrigeration show presented an excellent opportunity for this kind of a survey, because dealers were exhibiting at the show. Assistant Editors Winifred Hughes and Eleanor Blum spent a day interviewing dealers or their representatives and their observations are reported on this and the following page.)

Wagner Salesman Finds That Appearance Is Important

Appearance—the outside beauty of the box—is the first thing which the electric-refrigeration-seeking prospect of 1936 considers important, declared Gordon L. Reid, salesman of the Wagner Electric Co., Linwood Ave. dealer.

"The prospect must like the looks of the box before you can begin to talk sales features to her," Mr. Reid stated.

From exterior appearance, the customer's attention next centers most forcibly on low operating costs, he believes.

"People are no longer interested in "gadgets" or the extra accessory features, they want a refrigerator which will give them good, economical service, so the secondary point of consideration is the operating costs," he stated.

Consistent Service Policy

A consistent service policy in all its dealing with old customers, rather than the use of any "high pressure" sales methods is the formula by which Wagner salesmen get new prospects.

"We call back on our customers at regular intervals to see that the appliance which we sold them is giving satisfactory service, and offer suggestions by which they can get even better results from using their refrigerator or range."

Because the salesmen obtain a large number of their new prospect leads from old customers who recommend friends and relatives in need of electric refrigeration, there's no question of "high pressure" methods being employed, salesman Reid said.

"You naturally wouldn't use sales pressure in dealing with a friend, and most of our new prospects are friends of our customers, which is practically the same thing."

Cold Canvassing and Floor Selling

Seven salesmen are employed by the Wagner Electric Co. Cold canvassing and evening floor selling are included as important parts of their regular work. Time schedules are arranged so that one salesman remains in the shop while the others are out canvassing their territory.

Sixty-two refrigerators were sold by the dealership during the month of March, while approximately 65 boxes were sold during April. The March volume (which topped the 1935 March sales) was partly due to the dealer's refrigeration display at the Detroit Builders Show held recently, the salesman stated.

Procedure on Follow-Ups

Besides constant follow-up calls on old customers, the salesmen exercise a similar persistence in prospect-contacting. Proof that they get results from this repeat-call method is found in Mr. Reid's statement that last week he sold refrigerators to three prospect's whom he had first contacted in 1931.

Discontinuance of the F.H.A. finance payment plan has not affected the company's sales, Mr. Reid stated, since the plan was not used extensively. Both C.I.T. financing plans and G.M.A.C. (on Frigidaire units) are used by the Wagner Electric Co. Backing up the cold canvass work of its salesmen, the dealership uses direct mail advertising, and occasionally sponsors small advertising insertion in the Detroit newspapers to attract floor traffic.

* * *

Gardner-White Sells on Looks, Name, Operating Cost

Concurring with salesman Reid's opinion that appearance is a leading factor in interesting a prospect in electric refrigeration, John Reddaway, manager of the refrigeration sales activities of the Gardner White Co., a furniture dealer handling Frigidaire and Sparton refrigerators, listed the name of the box as the second important selling wedge, and low operating cost as third in the prospects words.

The Gardner White Co. sells Frigidaire and Sparton refrigerators in its three branch stores located in Detroit. In each store one salesman is employed to devote his entire time to refrigeration sales. The refrigeration display in each of the company's stores is placed on the balcony.

Service to Furniture Customers

Refrigeration was first added to the company's selling lines as a service to its furniture customers, Mr. Reddaway said.

"We have been operating a neighborhood community store for 26 years, and in this time we have built a clientele of people who purchase all their household furnishing requirements in our store. Chiefly to accomodate them, we took on electric refrigeration," he explained.

The firm employs no outside refrigeration salesmen, and uses no cold canvassing methods to build up its refrigeration volume. It does, however, devote approximately 25% of the space in newspaper and in circular advertisement (issued each month) to refrigeration. In this copy and in store selling, customers are urged to "buy an electric refrigerator now, and charge it to your account." This plan involves no down payment, low monthly terms selling the idea.

Credit Risk Reduced

An advantage gained by the Gardner White Co. as a result of the fact that most of its refrigerator sales are to furniture customers is that the salesman can recommend the box most suited to the prospect's needs and pocket book, a factor which eliminates risky credit sales, according to Mr. Reddaway.

"We believe it is bad policy to sell a customer a refrigerator which costs more than he can afford to pay, and no attempt is made to sell a higher priced box just to increase the amount of the sale. This is a form of protection for us; it also reduces the possibilities of having customers feel dissatisfied after they have had the box installed."

The company handles its paper in financing most refrigerator sales, although some of its Frigidaire sales are financed on the G.M.A.C. selling plan, Mr. Reddaway stated.

* * *

Good Housekeeping Shop Keeps 40 Men on Canvass

Store name and reputation draw prospects to the Good Housekeeping Shop, according to Ainsley H. Edison, engineer and supervisor, because people are used to the store's policy of impartiality.

"If it's worth selling, we'll sell it; if not we won't stock it, and the customers know it," Mr. Edison believes.

Good Housekeeping Shop steered away from FHA financing almost entirely because the plan was so misused by competitors, Mr. Edison said. In his opinion such financing belongs only on things directly connected with real estate, and not on anything that has to be serviced, such as a refrigerator.

Meter System Employed

A meter system where the customer pays 15, 20, or 25 cents for a 24, 30, or 40 hour period depending on the price of the refrigerator, has been found most satisfactory by this store.

"The teller goes to the customer's home, unlocks the meter, and the payment is there, without the customer having missed the money," is the simple way Mr. Edison explains it.

Customers now are looking for low operating cost, lasting design, and a good financing plan, he says. Kelvinator's 22 years in the domestic fileld helps their sales, he says, and Westinghouse's 50 years' record and superior engineering tells on their sales.

40 Cold Canvassers

Of the 68 men Good Housekeeping employs in its sales force, 40 of them do cold canvassing, and all work under a supervisor. Each supervisor, Mr. Edison says, meets with his men twice a week at morning meetings when men from the various companies explain products, and twice a month late in the afternoon. This afternoon meeting is followed by supper and another hour-and-a-half meeting.

All of the salesmen work on commission basis to give them "more incentive to dig," Mr. Edison explained. Very few specialize on any one product, and many are just contact men.

Although most of the prospects are contacted outside the store, most of the sales are closed in the store because of the value of a visual comparison of models and makes. In each case, an engineer explains the details to a buyer in the home, after the sale.

A "Gift of the Month Club" is Good Housekeeping's best user program. Users who fill out and report one prospect a month, even if there is no sale, are placed on the club's gift list; if a sale is made, however, a much better gift is given. Mr. Edison's most recent idea is to add to the gifts a six months' or year's subscription to the *Good Housekeeping* magazine.

Two "courtesy women" are also helpful in keeping user-goodwill, he reports. They call on buyers of any appliance, report service calls, give further instructions, and supply recipe books and like helps.

* * *

Satisfied Users Supplant Cold Canvass in Caswell Plan

C. M. Secker of Caswell, Inc., G-E distributorship believes that satisfied users are the best sources of new prospects. Bonus books help Caswell to sell by user cooperation with the aid of very little cold canvassing, he said.

Prospects that are more electrically minded and that have better buying power make this year look like a good one to him. Keen buyers, he maintains, no longer look for gadgets but are more than anything else interested in "getting away from trouble."

Hermetic Unit Best Sales Point

For this reason, Mr. Secker finds that the sealed-in mechanism together with the five-year guarantee G-E places on it is one of their strongest selling points.

The artistic value of the G-E Monitor Top appeals to Mr. Secker, and he oftens uses it as a sales point. "It proved to be a clinching one in a sale to one artist who acted against his wife's opposition to get the 'lines' of the Monitor Top instead of the 'tombstone' effect of a straight job," says Mr. Secker.

The loss of FHA financing has been felt quite a little, he said, but other methods are replacing it now; Caswell, Mr. Secker reports, leaves financing largely up to "customer-choice."

* * *

Dept. Store Sells Need for Proper Food Preservation

"The people have been educated to the point where they realize the necessity for food preservation and that's the chief thing in their minds when they come in to buy electric refrigerators from us," the sales representative at Crowley Milner's refrigeration display at the Show said when questioned about buying trends.

"They want something to satisfy their immediate needs, and they've already heard and read so much about the low consumption costs connected with operating an electric refrigerator that they are more interested in obtaining an adequate amount of storage space, and in getting a box that will not cost too much, yet which will give them the best service," he added.

Three Displays Used in Store

Maintaining refrigeration displays in three different locations in the store is one method which Crowley Milner's has found a highly valuable aid in building up its electric refrigeration sales. The main department is located on the seventh floor, and there are two other displays, one in the annex, and one in the store basement.

Fifteen salesmen merchandise electrical appliances in the department store. While telephone canvassing is used to some extent, and salesmen are sent out to make follow-up calls on especially live sales leads, store traffic is the chief source of new prospect leads.

Finances Own Sales

The store finances its own refrigeration sales, charging 6% interest. Boxes with a list price of less than $130.50 are sold on terms requiring a minimum down payment of $5 and two years to pay. On boxes above this list price, a higher down payment is required.

* * *

Lind's Stresses Features Which Interest Prospect

"Price, and cost of operating the refrigerator are two leading items which govern the prospective refrigerator buyer's choice today," said L. Norton, manager of the Lind Radio Co.'s Grand River Ave. store, at the company's display of Westinghouse, Leonard, Crosley, and Norge models at the Refrigeration Show.

"It's hard to say which sales argument is most effective because people seem to want everything—at low cost—in the refrigerator which they buy," he said. "The only way we can find what feature to stress is by telling a good sales story and building up the point that interests the prospects most."

Eye Appeal Important

Eye-appeal is still an important factor in selling to women, while men seem more interested today in the mechanical details of the refrigerator, in Mr. Norton's opinion.

In addition to the Grand River Ave. store, the Lind Radio Co. operates branch stores at Fenkell & Livernois, and at 41 East Grand River Ave. There are approximately 50 salesmen—40 outside men, and 10 floor salesmen—employed by the dealership in its stores.

(*Continued on Page 14, Column 1*)

Safety SHOULD NEVER BE TAKEN FOR GRANTED

The Los Angeles Biltmore Hotel. The Lounge Bar, the French Bar and the executive offices are air-conditioned with "Freon" refrigerants. The equipment was installed by Carrier.

"FREON" refrigerants are your guarantee against the hazards of fire, fumes, explosion or panic

SKILFUL and careful engineering in equipment manufacture and installation has done much to establish the safety record of air conditioning. Use of "Freon" refrigerants provides additional security against the danger of unexpected and uncontrollable mishaps.

The overwhelming preference for "Freon" refrigerants shown by so many manufacturers of air-conditioning equipment demonstrates their sense of responsibility for human health and safety, and their determination to provide sure protection against the slightest menace to it.

The tremendous sales potential in air-conditioning makes it essential that every installation should demonstrate the desirability, efficiency and safety of modern air-conditioning. A single accident can lower public confidence and slow our progress.

"Freon" refrigerants are non-poisonous, non-flammable, non-explosive. They are odorless when mixed with air up to 20% by volume, and have no harmful effects on foods, fruits, clothes or flowers. They have been tested by the U. S. Bureau of Mines, and meet all the specifications set by the Underwriters' Laboratories of Chicago in their recent report, "Standard for Commercial Refrigerating Systems" (Subject No. 207.)

The best evidence of the safety and efficiency of "Freon" refrigerants lies in the many outstanding installations in which they are used. Over 99% of all mechanically cooled railroad trains use "Freon" refrigerants.

They are used in ships, in mines deep underground, in office buildings, factories, restaurants and homes . . . in every type of installation, large or small. Over seven thousand tons of "Freon" refrigeration are contained in Government buildings in Washington, and it is anticipated that before the year is out an additional three thousand tons will be added.

For security of life, health and property, specify "Freon" refrigerants for your air-cooling system.

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safe refrigerants

KINETIC CHEMICALS, INC., TENTH AND MARKET STREETS, WILMINGTON, DELAWARE

Dealer Methods in Detroit Vary, But Prospects' Interests Are Much Alike

(Concluded from Page 13, Column 5)

Chief prospect-getting medium employed by the salesmen of Lind's store is door-to-door canvassing, the manager stated. New salesmen are first given a thorough training in sales methods, and then sent out to work under supervisors before they are given a territory to work by themselves.

Theater Cooking Schools

This training course takes four to five days, and instructions are continued in sales meetings, held several mornings each week from 7:30 to 9 o'clock.

Special promotional activity which Lind's uses to increase its appliance sales is that of holding theater cooking schools, conducted by the company's home economist.

"We have held three schools in the last four months, the most recent of which was held in the RKO-Uptown theater in February," Mr. Norton stated.

Besides holding cooking schools, the home economist works with the salesmen, demonstrating appliances in prospects' homes.

'Label' Story Used to Combat Mail Order Competition

B. F. Seidler, Jr., of the Michigan Refrigeration & Equipment Co., Inc., distributor of Copeland domestic and commercial equipment, says that his firm requires all its dealers to use its service department. Mr. Seidler explained that this precludes the possibility of a few dealers counting on their service departments for "callbacks."

"With an efficiently run staff right at the distributorship, we know the job is done right the first time," he said.

Flush Door Is Selling Point

Customers invariably wish after they have purchased a box, that they had ordered a larger size, and for this reason, Mr. Seidler says, the extra capacity that Copeland gives by having the interior of the refrigerator flush with the door, is a good selling point.

The loss of FHA financing has had no appreciable effect on sales that he can see. Dealers are merely substituting other financing methods.

Copeland's long record in the industry and the fact that it is a local company make good selling points in Detroit, Mr. Seidler says.

Good salesmen, he claims, are hard to get because it is a business good men don't stay in long. Mr. Seidler accounts for this by the fact that in appliance selling, people are "oversold" to the point that door-bell salesmen are constantly rebuffed.

How to Sell Against Sears

Against mail-order houses, which are making decided cuts in refrigerator business, Mr. Seidler says they urge dealers to use a "prestige" story. Just as no woman would show a mail-order label in her new dress, so now, with prestige becoming increasingly important, customers hesitate to display a similar label on their refrigerators.

Buyers are also increasingly conscious of refrigerator finish, and want to know if the finish will yellow or crack. The Truscon story is Copeland's answer to this, he says.

* * *

Dailey Sees Cold Canvassing Supplanted by Direct Mail

At Serlin's booth, a factory representative from Fairbanks-Morse, D. A. Dailey, was interviewed. He named low operating cost, freedom from trouble, and gadgets such as "fast freezing" as the things that most appeal to customers now.

Mr. Dailey finds that the "Conservador" on the Fairbanks-Morse sells to the womaen who do most of the actual buying, and that they, in turn, sell it to their husbands.

Guarantees Don't Impress Old Users

Although long-time guarantees sometimes impress the customer, today, people who have had electric refrigerators in their homes before don't worry a great deal about the guarantee.

Similarly there was a time, he claims, when finish had a much greater influence on selling; now the customer just expects it to be good. Design, however, still has some effect, with favor going to the stream-lined bulging affair that is evident in most of this year's models.

Large losses from the abolition of FHA appliance financing may eventually prove a gain, he claims, because the government financing had such an unstabilizing influence on industry. Boxes which were put in on the slightest pretext are coming back now, he said.

Likes C.I.T. Plan

Most dealers, he believes, are going back to C. I. T. financing, although the flat rate of $15 on refrigerators up to $200 is not the 6% rate which customers expect to get.

Although dealers definitely need an outside selling force, Mr. Dailey regards cold canvassing as on its way out. Some of the publishing companies' card devices for direct-mail advertising are proving effective, he suggested.

Even though he doesn't believe that the saturation point is going to be reached at the end of this year or next, Mr. Dailey says that when a stage as near as possible to that point is reached, the refrigeration industry will probably have undergone the same cycle as the radio industry, and the replacement market will be left to a few of the most outstanding firms.

* * *

Arnold Says Turnover of Salesmen Is Good Thing

Salesmen nowadays are harder to handle than prima donnas in the opinion of M. Arnold, manager of the Highland Park branch of Federal Home Appliance Co. Sales staff of this dealership fluctuates with men coming and going, but Mr. Arnold regards this as a good thing because the organization is kept alive, and the sifting process for getting good men is made easy.

In answer to the question of how he got his salesmen, Mr. Arnold said that he gets them through advertising and by "stealing them from other organizations."

Mr. Arnold is quite frank about using what he calls "Borax" propositions to get prospect leads. Blind ads, advertising low-priced merchandise, with the telephone number listed instead of the company's name, bring many calls, he says. By calling on the prospects without letting them know that there is a dealership connection, picking them up at their homes, and explaining the details on the way to the store, "that the company is a dealer and that these goods were obtained at a low price from the factory," customers are brought into the store. It's the salesman's job then, he explains, to take them away from the advertised leaders to merchandise with a better profit margin.

"Of course we lose some sales," he admits, "either because of the merchandising method or because the customer is disappointed in not being able to buy the better goods, but on the whole the system works."

Although Federal handles all refrigerators except G-E and Electrolux, Mr. Arnold is particularly anxious to push Grunow.

Grunow Name Helped

Grunow's past reputation overcomes the prejudice which was manifested against the machine when the company operated under 77B, Mr. Arnold says.

The refrigerator show has been a great door-opener for Federal's cold-canvassers, he finds. This company makes its good-will calls in threes, one by the salesman the very next day, then by the crew manager, and finally by the sales manager.

Blackboard lectures are employed to train salesmen. Half-hour meetings are held every morning, and an all-day meeting every Saturday at which Mr. Arnold cooks the meals for the salesmen on a Norge range. No salesman specializes on any one product, he says.

Although the store has been in its present location for only six months, Mr. Arnold claims that the Highland Park branch has sold $6,900 worth of appliance merchandise in five weeks.

* * *

Courtesy Calls Build New Business for DuPraw's

A conservative firm with a long-time business record, Dupraw's finds that its 24 years of service brings back old customers and brings leads from new, reports Louis Dupraw, vice-president and son of the company's founder.

"Courtesy calls, this company's been making them for 15 years," Mr. Dupraw said.

This firm also handled its own paper for 21 years, and probably will again soon, he said, although at present, after the short FHA period, Union Investment is doing its financing.

Although Dupraw's had only two or three repossessions from FHA, Mr. Dupraw didn't favor it because he felt that the terms were spread over too long a period.

In all makes sold by this dealer, Kelvinator, Norge, Sparton, and Crosley, the 6 and 7 cu. ft. models are the best sellers this year, he says.

Norge's ten year guarantee, he reports, has had an almost startling effect on customers. Consideration of easy service from a home product also comes into its share as a thing buyers are looking for.

Gadgets, he says, are not as important as they were two years ago, because buyers are more mechanism conscious, probably as a result of constant advertising stress.

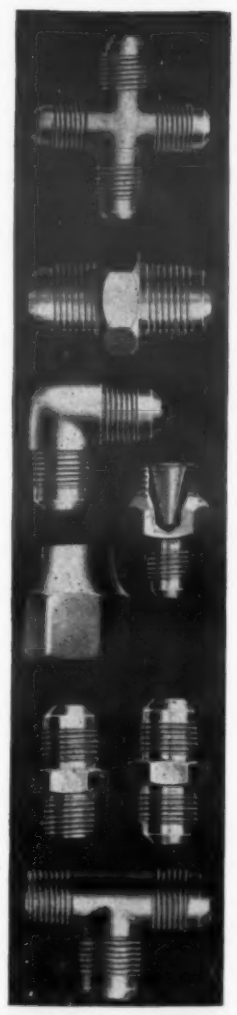
More then ever before, he finds, customers ask for some one make of machine, and the company background has a lot to do with which one they prefer.

The five men on the sales force of Dupraw's are all on a straight salary basis. They meet for a half hour every morning, do very little cold canvassing, and don't get very enthusiastic about factory promotion stunts.

Frigidaire Trys a New Stunt - - A Drop from a Blimp

Frigidaire gave one of its Master 6-36 models the "dropped in water test" by dropping it approximately 100 ft. from the Goodyear dirigible Puritan into Biscayne Bay, off Miami, Fla. Here are some photographs of the results. Upper left: A bevy of Miami's bathing beauties have an afternoon cocktail cooled with ice from the Frigidaire that took the plunge. Right: Examining the model after it was towed ashore. The condenser was battered in, but no leak occurred in the "meter-miser," the condenser, or the refrigerant lines. Lower left: No moisture had penetrated into the insulation or the cabinet interior. Right: A view of the falling Frigidaire, with its "life preserver."

EVERY TYPE



To accommodate differing types of refrigeration equipment a wide range of fittings is required.

There are hundreds of standard items in every pipe and tube size as well as a limitless variety of "semi-standards", which often may vary from standard only in one dimension.

Other fittings are extra heavy and some are definitely classed as "specials".

At Commonwealth we understand the fitting business thoroughly and can invariably furnish from stock any required number of standard or semi-standard fittings.

Every Commonwealth fitting is seepage-proof; of approved design, with accurately cut threads and tube seats carefully machined. Each tube seat is protected in shipping.

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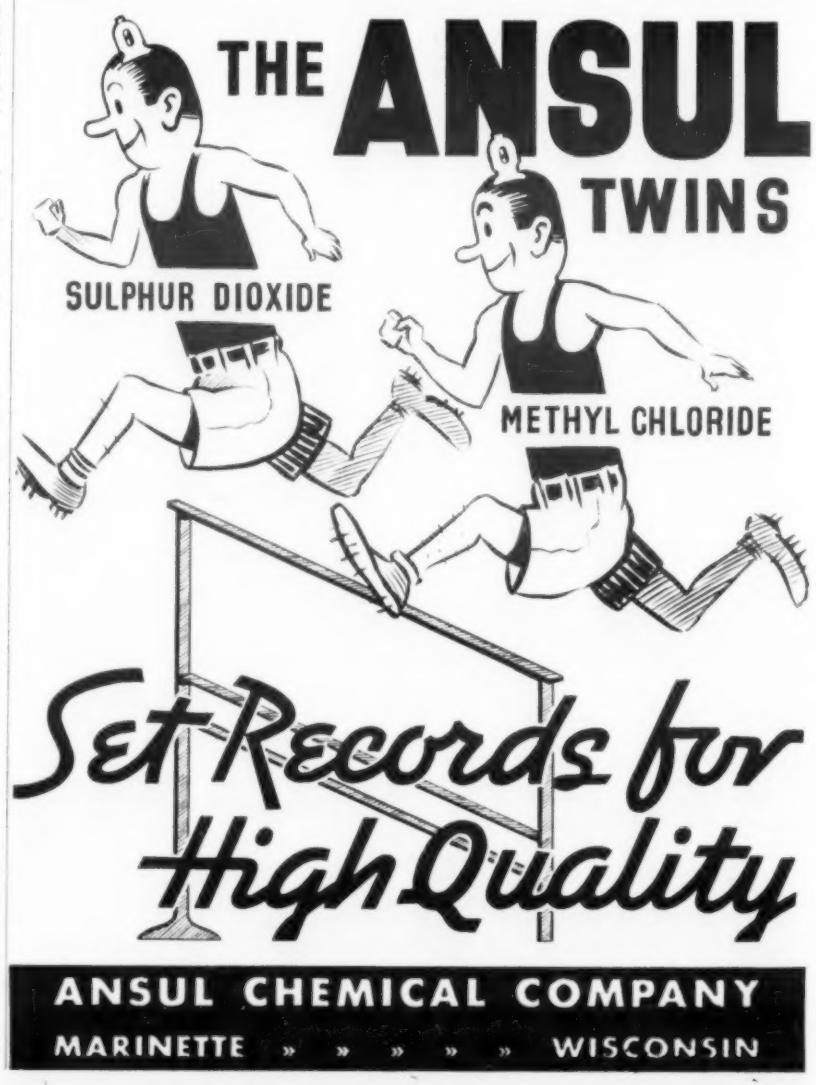

Commercial Refrigeration

Commercial Sales Started Fast This Year, Say Canton Dealers; Utility Aids on Engineering

By T. T. Quinn

(*Editor's Note*): Concluding a report on activities in the commercial refrigeration field in four Ohio cities, Assistant Editor T. T. Quinn on this and the succeeding pages tells of current trends, sales plans, and competitive conditions obtained in interviews with commercial dealers in Canton and Akron.

Commercial business got off to a fine start this year in both cities. While Canton dealers report a slight slowing up in the last month, Akron commercial companies show a steady volume of business.

As in Youngstown, Ohio Edison Co. is conceded to do the bulk of Akron's commercial work. Emphasis is being placed at present on dairy and beer-cooling installations. The utility is out of the merchandising picture in Canton, and the city's business is pretty well divided between York and Frigidaire, currently good fields being dairies and meat markets.

Canton Utility Helps Dealers With Engineering Problems

The utility in Canton, Ohio (Ohio Power Co.), unlike the Ohio Edison Co. in Youngstown and Akron, does no merchandising, either in household or commercial refrigeration sales.

In fact, according to Mr. Anderson of the utility commercial power department, the company does not concern itself much with what commercial refrigeration dealers in the city are doing, other than putting in the wiring for them, when needed.

"We cooperate with dealers on their engineering problems, when necessary, through our own engineering department," Mr. Anderson said. "But in most cases, we keep altogether out of the picture. As far as merchandising is concerned, we've been out of that picture for some time, and we intend to stay out."

Split by York and Frigidaire

Bulk of the commercial business in Canton seems fairly well divided between York, through Canton Hardware Co., and Frigidaire, through Worth C. Myers Co. General Electric, represented by Stark Marble & Tile Co., is also in the sales picture, and Moock Electric Supply Co., Westinghouse, is just now starting to get into the field in earnest. Refrigeration Economics Co., handling Brunner equipment, has had a number of the larger jobs, but is concentrating on a new line of coils which it has recently put on the market.

* * *

Moock Taking His Time In Commercial Field

At headquarters of Moock Electric Supply Co., Westinghouse distributor, Manager Moock said the company was getting into the commercial refrigeration field, but that it was going into it slowly rather than with a big splash.

"We're not doing a great deal at present," he said. "We're going slowly—sort of feeling our way.

"We've had so many 'starts' and 'stops' from the factory that we've begun to be pretty cautious ourselves about the jobs that we do.

"Our biggest responsibility, right now, is to see that every job we put in is installed properly. When we install a system anywhere in our territory, we want to be sure it measures up—we want to know that it will give long, trouble-free service.

"Commercial business, in the past, has been a sort of 'giddyap—whoa' affair with us here. We 'giddyapped' on commercial, and were 'whoaed' by the factory so many times that now we're taking it easy ourselves.

Anxious to Do Jobs Right

"We're not hurrying into commercial—there's too much in it that you can do wrong if you rush in to get a big chunk of the business without being prepared for it. What we're most interested in now is seeing that all the commercial jobs we do are done right."

Both H. R. Frazier, traveling representative, and G. M. Nutter, commercial manager, were out of town when we first called. Mr. Nutter, however, was back in the city at dinnertime.

Most of the company's business, he said, has been in the fractional horsepower hermetically sealed units, for installation in reach-in boxes, and for beverage and beer cooling.

Going After Larger Jobs

"We're going out after the larger size installations now, though," he added. "Now that the factory is ready for action, we're beginning to get ready, too. It's a nice field, and there's plenty of business there. But we wanted to be sure we could handle that sort of work before we began making bids for it."

The company handles 16 counties on both household and commercial refrigeration, and Mr. Nutter is beginning to see a problem in some places with regard to his dealer set-up on commercial.

"We like to handle commercial refrigeration, as well as household, through dealers wherever possible, staying out of the direct sales end if we can. Where we can't make a satisfactory dealer arrangement, of course, we'll do the business direct.

Wholesale Basis at Wholesale Prices

"Most of the commercial business in our territory, however, seems to be done on a wholesale basis, and at wholesale prices. In other words, the distributor acts as a dealer, obtaining his equipment direct from the factory and merchandising it himself.

"When commercial is handled this way, the distributor-dealer naturally can offer terms and prices which are considerably more attractive than a regular dealer, who is supplied by his distributor, can make. In the first case there are two margains of profit to work on; in the second, there is only one.

"In most cases of this sort, the dealer who is really a dealer just can't compete, that's all. He can't make the price concessions some of his competitors can make, because his profit margin is much narrower. How to meet this situation is one of our principal problems just now."

Myers Reports Drop in Sales After Three Good Months

Business in commercial refrigeration has been slow during the last 30 days, according to C. H. Dauberman, commercial manager of Worth C. Myers Co., Frigidaire dealer in Canton.

"But it was fine during the first three months of the year," Mr. Dauberman said.

Commercial refrigeration business in general, Mr. Dauberman has found, will follow pretty much of a cycle during the year, the ups and downs contrasting rather sharply with the household refrigeration curve.

The Year Commercially

"January, February, and March are usually good," he said. "April this year was rather slow, but it isn't usually. May, June, and July are also pretty good months in commercial.

"August, as a general rule, is pretty much dead, but September and October are usually busy times for us. After that things slow down to practically a standstill, and November and December find little, if any, commercial business being done."

Busiest fields of commercial activity right now, Mr. Dauberman said, are straight commercial (grocers, butchers, restaurants), and the dairy industry. There has been a lot of business in this latter field lately, Mr. Dauberman stated, and it has been worth going after.

Handles Schmidt Display Cases

"Most of our jobs are not very large, as costs go," he said. "On the average, they'll run between $400 and $700, in the great majority of cases."

In addition to Frigidaire commercial equipment, the company handles the line of display cases manufactured by C. Schmidt Co., Cincinnati.

"This gives us a pretty good line on both ends of the commercial business," Mr. Dauberman put it.

On the refrigeration equipment, the company does its own installation work, having a staff of factory-trained men for this purpose. On commercial cases, the company leaves this work to other agents, "usually to some reliable independent service company," Mr. Dauberman said.

Case Installation Hard

"Installing the case isn't nearly as hard a job as putting in the refrigeration equipment so it will operate properly," he added. "We can let that part of the job go outside, and the work will be as satisfactory as we could do. On refrigeration equipment, however, we don't want to take any chances, so we do all the work ourselves."

One job which the company has just finished with, is in the Farmers' Produce Market in Canton, and called for a total of $3,319 worth of refrigeration and display case equipment. This includes a 12-ft. double-duty meat counter, a 6-ft. fish case, an 8-ft. specially built refrigerator, and a vegetable case.

Furnishing refrigeration for the equipment is a 1-hp. air-cooled model F4-F Frigidaire compressor.

Beer-Cooling Business Poor

Beer-cooling business, Mr. Dauberman said, is not very good in the Canton territory at the present time, as far as his company, at least, is concerned.

"Pre-cooler business," he said, "has been good, and I believe the majority of pre-coolers in use in this territory have mechanical refrigeration. The trouble has been with the dispensing equipment itself.

"When you get the water bath around the dispensing coils cold enough to chill the beer down to the temperature you want, the water itself freezes around the coils, and you have, in effect, the same thing as an ice dispenser.

Use Mechanical Pre-Coolers

"A good many of the taverns around here are using mechanically refrigerated pre-coolers, but are sticking to ice for their beer-dispensing equipment."

One job which Mr. Dauberman handled recently, in the beer-cooling line, was in the Trail Tavern, near Canton, and was used in a pre-cooler already installed in the place.

"I knew that the operator of the place had built that pre-cooler himself," said Mr. Dauberman, "and I knew also that he had used sawdust for insulation purposes.

"I knew that, using standard refrigeration equipment for that sort of job, the operator could never get the results he wanted. So I sold him oversize equipment.

"On a normal job of that size, a ¾-hp. compressor would have been sufficient; so I played safe and sold him a 1-hp. compressor. Instead of the 14-in. blower, which a normal job of that sort would have required, I sold him a 16-in. blower.

"He wanted the pre-cooler compartment kept at between 35 and 38° F. This equipment does it, and does it easily — standard size equipment couldn't have handled the job to this man's satisfaction."

Water Already Cold

Water cooler business, Mr. Dauberman said, is of no great consequence in Canton.

"We get our water here from artesian wells, and it seldom gets over 50° F., so you can see there's not much occasion for water cooling in this territory, even in the hottest weather."

In some other Ohio cities, we had heard complaints from commercial refrigeration dealers that commercial cases were under-coiled, that refrigerating machines were called upon for too much strain in a lot of cases where the cases were shipped from the factory, with coils already installed. Some other dealers might think so, but not Mr. Dauberman.

"I've never heard of any cases furnished complete by the manufacturer which were undercoiled," he said. "Case makers have engineers, too, and these men, you can be pretty sure, will see that the equipment has plenty of coil surface before they approve it.

Causes of Under-Coiling

"Most of the under-coiling trouble, I think, comes when the salesman gets a job, buys the case from one place, without coils, and buys the coils from another.

"The tendency, when this happens, is to shave the coil cost as much as possible, to give the salesman as big a profit as possible on the deal. So the salesman usually buys some coils of smaller size than needed, and as a result the job is under-coiled, and its performance suffers.

"The case business is a 'chiseling' business, 'most any way you look at it. Case buyers are primarily 'price' buyers—and the firm that makes the best price gets the job. Merchants figure most cases are about the same, so they buy the one on which they get the best price.

"Handling a line of cases has helped us to meet a lot of this competition—and I believe we've got a lot more business with them than we'd have had without them."

* * *

York's Canton Plant Makes Only Dairy Equipment

York Ice Machinery Corp. has a plant in Canton, but a call at the manager's office revealed that the manufacturing operations carried on in the city have to do only with dairy equipment, and that the plant's entire output is shipped direct to York headquarters. The branch has no sales operation.

* * *

Refrigeration Economics Co. Switching to Manufacturing

Refrigeration Economics Co., managed by Frank M. Bennett and C. J. Weaver, handles Brunner refrigeration equipment, but is gradually abandoning the installation field to devote more time to the manufacture of "Reco" refrigeration equipment—finned coils, bare pipe coils, and forced draft unit coolers.

In the installation of Brunner equipment, most of the company's business has been in the larger units, for ice plants, breweries, and the like. But the company is gradually getting away from this end of the business, to devote its time to its new line of coils for commercial installations.

The coils are being made for both large and small applications, ranging in size from display or double-duty cases to large meat coolers, dairy jobs, breweries, general cold storage, produce, fruit, and similar uses.

Fin Corrugation

A feature of the coils is that they are made with concentrically corrugated fins, permitting the installation of a given coil surface in a small space, and forcing an air turbulence which improves heat transmission and overall coil effectiveness. Concentric corrugation, it is also claimed, retains more moisture on the surface, producing the high humidity necessary to proper preservation of foods without excessive shrinkage losses.

The coils are flared to a long neck and the tubing is expanded, thus seating the fins down into the tube metal. No corner strips are needed to hold the fins in line.

They are of the continuous tube type, with no soldered or brazed joints. For methyl chloride, sulphur dioxide, or Freon, copper tubing is used; for ammonia, aluminum tubing is used.

Furnish Engineering Help

Refrigeration Economics Co. furnishes engineering advice, plans, and service on its jobs, as well as estimates of first cost, operating cost, and possible economies.

One application of the coils with down draft system was made recently in a small storage room. The down draft system consists of aluminum "V" troughs suspended directly below the point of the fins, so that when the coils defrost the water drops into these small troughs, is carried to the tinned copper cross gutter, and thence to the drains.

Cold air drops directly down the coils, the V troughs offering little resistance to air flow. Temperatures taken with a thermometer hung to the troughs showed that air leaving the coil is only 1½° F. colder than when entering the coils from above. A relative humidity of between 85 and 95% is maintained in the room.

In another application, this one in the meat cooler of a large retail market, a temperature between 32° and 36° F. is maintained using a 3-hp. methyl chloride compressor. The same market uses the coils in 156 ft. of single glass top display cases, a sec-

(*Continued on Page 16, Column 1*)

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LONG

York Distributor Tells How Sales Are Made On Quality Basis in Commercial Field

(*Continued from Page 15, Column 5*)

ond 3-hp. methyl chloride unit being employed for this purpose.

In the smoked meat room of another large retail market, 45 ft. long, 23 ft. wide, and 8 ft. high, the coils and down draft system were placed between the rails which crowd the room. The ammonia coils formerly used had been on the room's walls, and saving this coil space increased the room's storage about 25%.

Before the installation, the market used two 10-hp. machines in the summer time; about every fourth Saturday, the coils had to be defrosted, and this took a crew of six or eight men two or three hours.

Now the refrigeration plant is automatic, and the coils defrost themselves every time the machine shuts down. Where formerly two 10-hp. units were required, one now handles the whole job, and has, in addition, been reduced to 7½-hp. load.

* * *

Hardware Firm Sells on Quality & Efficiency

Canton Hardware Co. is York and Servel dealer in Canton, doing about 90% of its compressor business with York and using Servel coils and other equipment. John W. Brothers is manager of the commercial department.

The fact that the company is one of the leading, if not the leading, commercial refrigeration firm in the city, despite the fact that the line of equipment it sells is higher-priced than most others, is explained by Mr. Brothers in this way:

"Our problem in selling commercial refrigeration was to educate the buying public to buy our equipment, even though it costs more than most others. We had to convince them, in other words, that, no matter how much more they were paying for our equipment, it was worth it.

"When we bid on a job, we're almost sure, in advance, that we'll be the high bidders. So our problem is one of education—we have to sell our prospects quality above cost.

Efficiency Good Sales Point

"We've come through on this angle of the selling problem all right; and since we've had several jobs in, another angle has helped us, too. That's efficiency of the equipment. Our service problems have been nothing at all with York equipment. We see that it's installed properly, and then we can forget all about it. It never gives us any trouble."

Fields particularly active at present, Mr. Brothers says, are groceries, butcher shops, beer distributors, and restaurants.

"Commercial business has been good, all this spring," he said, "but household sales have sort of dropped off during the last 30 days."

Most commercial jobs, he said, have been in the $400 to $700 price range, although the company has handled jobs running all the way from $250 to $3,200.

This year, Canton Hardware is "shooting high" in commercial refrigeration, Mr. Brothers said. The company is expecting to better its 1935 volume of $25,000 by at least 60%.

Case Field Competitive

Handling the Gloekler line of commercial display cases and coolers, the company tried the same procedure as with York condensing units—but it didn't work, Mr. Brothers admits.

"You can't get the case business by talking quality," in his opinion. "That's a price field—and besides, there's too much competition."

Some of the most difficult competition, Mr. Brothers said, comes from meat salesmen.

"You see, in their travels, these meat salesmen usually find out earlier than most others what merchants are planning to put in new commercial cases. Of course, these men like to make all the money they can—and this is one way they can cash in on their acquaintances.

Battle for Sales

"They're usually acquainted with one of the commercial case representatives in their territory—more than one, in lots of cases—and as soon as they see the merchant is really considering a new case, they turn his name over to their commercial-refrigerator-salesmen friends, and the battle is on. The meat salesman gets a commission if the sale is made—and when he turns the name over to three or four companies, he's almost certain to profit by it.

"I don't say that there's anything wrong with this way of doing business—we might do it ourselves, if our profit margins on cases were longer. But they aren't. The case salesman, working without overhead and other fixed expenses that we have, can make a deal with the meat salesman that we can't touch. A lot of cases have been sold around here in just that way."

At that, the company didn't fare so badly in commercial case sales last year; 12 display cases, a walk-in cooler, and several reach-in boxes were sold. Mr. Brothers is confident sales this year will be as good, or better, than that.

Brothers Does Estimating

A graduate engineer, Mr. Brothers does all the estimating on the commercial jobs himself. Assisting him in the sales end of the business are four men, in a territory covering three counties, though Mr. Brothers says:

"We've been kept so busy working right here in Canton that we hardly have time to take care of the rest of the territory."

The company uses a systematic sales procedure which may, in part, be accountable for its success.

"Every spring," Mr. Brothers said, "we go through the city directory, and take out the names of all merchants who are likely prospects for commercial refrigeration equipment of one kind or another.

Direct Mail Promotion

"Next, we circularize them with what we think is a pretty powerful direct mail advertising campaign. After that, our salesmen canvass these 'suspects'—all of them, large and small.

"You never can tell where you'll find commercial refrigeration business. The small corner store is as potent a prospect, in our eyes, as the largest market in town. And these small merchants are a nice source of business."

All of the company's commercial installation work is done by a single independent service company—Barnaby Refrigerator Service Co. The company has a good reputation in Canton, Mr. Brothers says, and merchants have learned, by experience, that jobs it installs are well handled.

"When Barnaby shows up on a job," Mr. Brothers said, "the merchant is confident it's going to be done the way it should be.

"One of the big factors in our sales has been the fact that, once installed, our jobs require little or no servicing. And I think that good installation work has had a large part in helping us to establish that reputation here with York equipment."

All installation work is done at Barnaby's regular prices. The service company furnishes the tubing and the fittings, and Canton Hardware takes care of the rest.

Ohio Edison Co. Gets Bulk of Commercial Business in Akron; Sales Pickup Started in December

Utility Finds All Fields of Commercial Business Good

The commercial refrigeration situation in Akron is similar to that in Youngstown in at least one respect—the utility, Ohio Edison Co., selling Frigidaire equipment, gets approximately 90% of the business in and near the city.

W. A. Treacy is the company's commercial refrigeration sales manager. Assisting him are three salesmen, who work in Akron and the smaller towns nearby. Most of the sales work in these smaller towns is carried on with the cooperation of local Frigidaire dealers, whose franchise covers commercial, but whose selling experience doesn't.

In cases of this kind, the utility salesman works with the local dealer throughout the sale, does the actual closing work, in most instances, by himself, and splits his commission with the dealer.

Sales Better in Some Fields

All fields of commercial business seem to be good at this time, Mr. Treacy said, although the meat market field, especially in Akron, is pretty well saturated right now. Compensating for this usually steady source of commercial business, however, is renewed activity in several other fields—notably restaurants, retail beer distributors, dairies, and apple storage.

The dairy field is just beginning to wake up to the possibilities of commercial refrigeration, and Mr. Treacy is looking for it to be a major source of some mighty good business in this and succeeding years. The company has just finished getting out a direct mail campaign aimed directly at milk producers, and already some results are being noted in increased inquiries, although Mr. Treacy thinks it is too early, just now, to label the campaign a success.

Milk Cooling Improving

"Milk cooling is a good field right around here," he said, "and with conditions getting better, a good many farmers who did without the equipment up to now are going to be in the market for it."

The company's volume of commercial business last year totaled $70,000, with many of the months showing sales over $15,000, and December being a particularly good month with sales of $18,000.

Buy Equipment to Avoid Taxes

"Of course, there's one explanation of the December jump in commercial business," Mr. Treacy said. "When a merchant has had a good year, he knows his taxes for the year will be higher, unless he finds some way to put some of his profits into his business.

"During the last month of the year, most merchants who have made money are looking around for a place to spend some of their excess profits. Their old commercial equipment, if they have any, may need replacing, or they get to thinking about installing a commercial system, in case they've been using ice before.

"By signing up and having the equipment installed before the end of the year, these merchants have charged the cost off against business expense, and lop just that much off their tax bill for the year.

"A good percentage of our December commercial business was to merchants who wanted to beat the tax 'rap' in that way."

Sales Average $375 to $600

Most of the company's jobs last year averaged between $375 and $600, Mr. Treacy said; as far as size is concerned, most of the jobs called for 1 or 1½-hp. units.

Ohio Edison handles no line of commercial display cases.

"We'd rather work with all the case people than try to compete with them," Mr. Treacy said. "Some of them give us enough competition as it is—handling their own line of condensing units and selling the complete job wherever they can.

"But we've got a pretty good arrangement with the commercial refrigerator companies here in Akron. Our salesmen, in addition to canvassing merchants regularly, also get a good many leads from commercial case salesmen. In exchange, our salesmen will give them leads on commercial case prospects."

Best months for commercial business last year, Mr. Treacy said, were April, May, June, July, August, and December.

'Pay in the Spring' Plan

"We use a 'pay in the spring' plan here that helps our fall and winter sales," he added. "On the jobs we install in the cold weather, when business generally is slow, we give the merchant the option of making only his down payment, and waiting until, say, April, to start his regular payments."

The utility finances its own commercial paper, giving terms of 24 months or less.

There's a city regulation in Akron to the effect that all installation work on commercial jobs must be done by a member of the local Plumbers and Steamfitters Union. The utility has one of its men on hand, however, to supervise the installation work. The union man, according to the agreement, furnishes the tubing and fittings.

Install Special Test Room

An interesting and unusual installation which the company recently completed is in a special low temperature test room at the plant of Miller Rubber Co., a subsidiary of B. F. Goodrich Rubber Co.

The room is used for testing sample bits of rubber under extreme temperatures, to determine their stamina. Unusually low temperatures are required throughout.

The test room itself, really a room within a room, is 4 by 3½ ft., and a temperature of –50° F. is maintained in it at all times. Outer room, 6 by 8 ft., is kept at 0° F.

Insulation, for the inner test room, is 12 in. of corkboard, all the way around; 8 in. of corkboard is used in the outer room.

Two ¾-hp. condensing units are used on the job, one for each of the rooms. In the lowest temperature room, alcohol brine is used; Freon is used in the outer room.

* * *

McCray Dealer Says Edison Waives Wiring Charge

"Too much power company" was the answer at McCray Refrigerator Sales Co.'s Akron office, when we asked why their business was better in the smaller towns than it was in the city itself.

The company handles its business direct in the territory in and around Akron, according to C. M. Hillabrand. And if it wasn't for the pick-up in provincial business, there wouldn't be very much to be optimistic about, he added.

$25 Charged for Wiring

"Ohio Edison has a big advantage over us here in Akron," Mr. Hillabrand said, "and it follows this advantage up at every opportunity.

"Most commercial jobs require special wiring—the regular 100 volt circuit won't handle the work, and a 220 volt circuit has to be put in when the commercial installation is made.

"Ohio Edison has a charge for this work of $25—but where the utility gets the job, it will do this wiring for nothing.

"It's not hard to see where this concession leaves us—we're $25 down right at the outset. That's tough competition to buck."

Would Welcome Agreement

Mr. Hillabrand would very much like to see some sort of agreement reached between other companies and Ohio Edison on this matter of wiring. The way things now stand, the utility, he believes, has a head start on all commercial jobs which the independent dealer cannot meet unless he lops $25 off his selling price right at the start.

This condition, however, doesn't apply outside of Akron, and in that territory McCray's sales this year have been good, Mr. Hillabrand said.

The company handles a line of commercial compressors carrying its own name, and made for it by Universal Cooler.

Business in Towns Better

There's been a big pickup in business in the smaller towns," Mr. Hillabrand said, "which accounts for the increase in commercial business there. A lot of these towns were down to rock bottom during the depression, because they depended for their prosperity on one industry—and when it went down, they went with it.

"Lately, though, these factories and plants have started up again—people have money to spend again. Merchants are beginning to see black instead of red, and are making some needed improvements in their refrigeration equipment."

* * *

Hill Rents Floor Space For Display Case Line

Hobart Mfg. Co. was listed in the phone directory as headquarters in Akron for the C. V. Hill line of commercial refrigerators and display cases.

Investigation disclosed, however, that the company was using the Hobart floor space for display purposes only, and that Hobart had nothing to do with the merchandising of the cases. That company, it seems, is busy enough with its own line of coffee grinders, scales, and other store equipment.

The young fellow in the office told us that Hill had rented space in the store to have a convenient showroom for prospects in and around Akron. Salesman working the territory, he added, had his headquarters in Cleveland, and you never could tell when he was liable to be in and out of town.

Business hadn't been so good as far as the cases were concerned, the young man said, until just recently. Then things started to pick up.

"The salesman sold three 10 or 12-ft. display cases last week, right here in the Akron territory," we were told.

* * *

Long-Time York Dealer Tells Of Trend to Small Units

Metlin-Biege Co. is York dealer in the Akron territory. E. B. Metlin and W. T. Biege are the owners. Old, well-established, highly-regarded, the company, in its quiet way, takes a good slice of commercial business out of the community.

Size of individual commercial jobs is coming down, year by year, Mr. Metlin said. Right now, dairies and meat markets offer the best possibilities. But it wasn't always that way.

"The commercial refrigeration business has worked its way down to where most of the jobs today are small ones, compared to the ones we used to get," Mr. Metlin said.

Recalls Ice Plant Work

"In our early days in the field, all the jobs were big ones—for ice plants and things like that. Our average job, back in those days, ran around 200 tons.

"Then along toward the end of the 1920's, the jobs began to get smaller. Our average about that time, I'd say, was in the 5, 10, and 20-ton class.

"Today, though, most of the jobs will run between ¾ and 5 tons. Very few of them, any more, will go above that."

The company has no salesmen, other than the two owners. As Mr. Metlin says:

Owners Do Selling

"We tried putting out a crew of salesmen at one time, but for us it never worked out well. So we just gave it up, and since then we've been handling all the sales work ourselves.

"We're an old company in Akron,

(*Concluded on Page 17, Column 1*)

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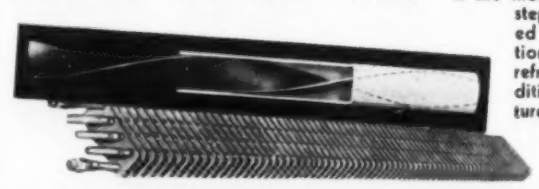

TRENTON AUTO RADIATOR WORKS
210 West 65th, N.Y.C. TRENTON, N.J. 5114 Liberty Ave., Pittsburgh, Pa.

Akron Dealers Find Beer Cooling Business Good Now Because Sales Stick

(Concluded from Page 16, Column 5)

and well known, so we find out, through friends or direct from the prospect, about most jobs, anyway. Practically all the jobs we care about are ones on which bids are called for, and so we get a chance at most of the ones we want.

"With a fair chance to bid on a job of any size, we figure we can get our share of the business, at a reasonable profit.

"That's the only kind of business we're interested in, anyway. If we see we can't bid on a job, and make money, we pass it up."

Replacements to Fore

Replacement business is beginning to become a factor with the company, Mr. Metlin said. Especially is this true of some of the earlier ammonia jobs which were originally installed some years ago, and which are now being replaced with newer, more economical models.

"We won't trade at all for a used refrigerating system," Mr. Metlin said. "It's a policy we adopted right at the beginning of the replacement business, and we intend to stick to it.

"If we did take a used job in on trade, we'd have a second problem trying to dispose of it. And the trouble with replacement jobs is that your prospect for it has to be 'tailor made'—the job has to be of the exact size and capacity he needs, or its no sale.

"We tell our customers who have used units that we'll help them sell the job—that we'll be on the lookout for prospects who need a job like it. But we won't handle it ourselves, and we make no allowance on it on a new installation.

"If we can't sell the job for the prospect, it's his loss, and not ours."

About the best market, so far, for most of the used refrigerating equipment, Mr. Metlin said, is in the dairy field. At least there are more persons who can use the equipment in this field than in most others.

* * *

Replacement Installations Need Care, Says Uhl

Uhl Electric Co. is finding its best commercial business right now in the beer-cooling field, according to Harvey Uhl, proprietor. The company sells Larkin beer equipment, and Servel commercial condensing units.

One salesman is working for the company in Akron, in addition to Mr. Uhl. Two factory-trained installation men are in charge of this branch of the business.

Mr. Uhl told of one beer-cooling job which his company recently installed in one of the city's bars. Most of the beer-cooling jobs, he said, run around ¾ hp., and this one he had in mind was of that capacity, to replace an ammonia job rated at 2 hp.

"The owner of the tavern tells me that his new equipment runs better than the other and larger one did, and naturally his cost of operating it is much lower than formerly," Mr. Uhl said.

Food Markets Important

Replacement business is becoming a factor in the regular commercial field, Mr. Uhl said, especially in groceries and meat markets. In his opinion, this field is important, and is definitely not one into which dealers should rush for business on a catch-as-catch-can principle.

"A good many of the merchants who are coming into the market for commercial replacements had jobs which, while all right in their way, were not installed properly, as we understand commercial installation work today.

"Dealers who rush in there and gobble up this business in a hurry might be making a big mistake. The merchant is getting new equipment for one prime purpose—he wants more efficient, more economical refrigeration than he has been getting with his old equipment.

"These replacement jobs, if they aren't planned and installed carefully, are apt to be not much better than the jobs they replaced. Then the merchant will have the idea he's been taken advantage of, and a few dissatisfied customers like that can do a lot to give mechanical refrigeration a black eye."

Trade-Ins Allowed

Mr. Uhl's company takes in used refrigeration equipment on a trade-in basis, most of the time merely for the parts; for most used jobs, Mr. Uhl thinks, are pretty well done in, or the owner would not be a prospect for new equipment.

"Some times, you can get a merchant to keep his old equipment, and use it for some purpose around the place—refrigerating a store room, for example. We like to do that wherever we can, when the equipment is in good condition or can easily be reconditioned. It's not as efficient as his new job, but the work it does is less exacting and it serves a worthwhile purpose."

Careful Reconditioning

Reconditioning used equipment must be done carefully, if at all, Mr. Uhl said. In the hands of careless or incompetent workmen, used units can be a lot more trouble than they're worth.

"We had a case of that kind not so long ago," he declared. "Some used equipment, which some service company here in Akron had reconditioned and sold, was giving its owner a lot of trouble, and they called us in on the job.

"When we took down the unit, we found what was wrong easily enough—the bearings were all burned out. In repairing the unit, the service company used regular motor oil for lubrication instead of the type of oil specified for the job.

"It's a wonder there was anything left of the machine at all."

* * *

G-E Plan for Commercial Sales Logical but Will It Work?

C. J. Ballus, manager of Electrical Housekeeping Inc.'s Akron branch, handling General Electric equipment, was full of kind words about the logic of the plan which Commercial Sales Manager C. M. Rowland in Cleveland has set up for covering the territory—but he wasn't nearly so optimistic about the probable results.

"The plan is logical," he said, "and it ought to work out—but in this town Ohio Edison gets the cream of the commercial business; we have to try to get as much as we can of whatever's left. Because of this condition, our over-all commercial business this year has been negligible, compared with what it might be."

One phase of the commercial business that has been good, however, is beer equipment—both for beer cooling and bottle storage. Mr. Ballus told of two jobs the company had installed that week—one for beer cooling, totaling $700, and the other for storage, totaling $1,100.

Works with Household Men

Commercial business in the Akron territory is in the hands of a Mr. Case, who works Summit county and has headquarters in Cleveland. In Akron proper, Mr. Case works directly with members of Electrical Housekeeping's household refrigerator sales department, obtaining leads from them and paying them a commission on sales closed in this manner.

Out in the country territory, Mr. Case works with "bird dog" dealers and individuals, who keep him posted as to who is in the market for commercial equipment, and help him with the sale when they can. These people are also paid a commission on sales closed through their aid.

Attacks 'Price' Buying

"One thing that's wrong with the commercial business today is that it is almost purely a 'price' business," Mr. Ballus declared.

"The company that makes the best price gets the job. Merchants don't know one kind of compressor or one type of commercial job from another, and so naturally they'll buy their equipment from the dealer or salesman who makes what they consider the best 'deal.'

"In a situation of this kind, it's hard to talk quality against price."

Prices quoted on some of the jobs in and around Akron have been at such wide variance, in some instances, that Mr. Ballus is beginning to suspect that some of the low bidders were really offering reconditioned condensing units in the guise of new ones.

'Reconditioned' Equipment

"I can't see, otherwise, how they could quote the prices they did, and still make a profit on the job," he declared.

"There's nothing wrong with selling reconditioned equipment—if you sell it as that. But selling used equipment, and giving the buyer the impression that it's brand new, is not only taking advantage of your prospect, but of your competitors as well."

The company has found the case business mighty hard to break into, Mr. Ballus said. "It, too, seems to be a case of price, pure and simple, and with some case dealers handling compressors as well, and selling them at cost just to get the order for the case, there's very little business left for companies who want to make a profit on both items.

Go Along with Case People

"My idea on this case proposition is this," said Mr. Ballus. "If you can't buck them successfully, go along with them.

"Fighting them with a line of cases of your own doesn't help. We've tried that, and it hasn't brought us any additional business. I think the best thing to do, instead of opposing them, is to go along with them. Let them have all the case business they can handle—and concentrate on the refrigerating equipment.

"This will make them feel more friendly toward you, and the chances are they'd be glad to get out of the condensing unit business in your favor, if you'd get out of the case business in theirs. The refrigerating end of the business has the most grief in it, anyway."

* * *

Pfarr Criticizes Union Rules On Refrigeration Installations

Best commercial business for Pfarr-Hobart Co. right now is in meat markets and in beer pre-cooling, according to G. E. Pfarr, head of the company. The company is Universal Cooler and Copeland dealer.

"The beer installation business is a whole lot better now than it was in the early days of repeal," Mr. Pfarr said. "Our customers for this equipment now are firms who have either been in the tavern business for some time, or who are going in with a good financial background and the intention to stay.

Beer Business Sound Now

"Right after repeal, we could have had plenty of this type of business—beer cooling—but we were mighty careful how much we took. Credit conditions were risky, to say the least, and it was evident that a lot of the taverns and bars that were opened weren't going to be able to make the grade.

"We turned down a lot of that business then. But the beer business you get today is as good as anything else. The men who open places now know the problems they're up against, and they're not in there to make a quick cleanup and get out. They're in the business to stay."

The company finances its own commercial sales under rather strict credit regulations—25% down, and up to two years to pay, with interest at 6% on the unpaid balance.

Butcher Shop Market Good

H. B. Hobart, the other partner in the company, is in direct charge of commercial sales, and Ralph Zahniser is the firm's only salesman, besides Mr. Hobart, in Akron.

Butcher shops have been another good field for commercial business this year, Mr. Pfarr declared. The company handles the Cincinnati Butchers Supply Co. line of commercial display cases.

We didn't notice any of them displayed on the floor, and asked Mr. Pfarr about it.

"We don't need to have any displayed," he said. "We've sold enough of those cases in Akron that, in almost any part of the city, we can take the prospect down the street a few blocks and show him one of the cases in actual use.

Demonstrate Users' Cases

"That, we think, is a much more effective demonstration than if we had a whole line of them sitting on our display room floor. The prospect sees the case in actual use, under conditions very like he himself will demand of them, and it makes a strong impression.

"Besides, we can get 24-hour service from the factory in Cincinnati. If we sell a case one day, we wire or phone the factory, and the case is delivered next morning—not to us, but direct to the store in which it is to be installed. This clears up two problems for us—stock and delivery. We think it's a good arrangement."

Attacks Union on Installation

One thing Mr. Pfarr doesn't like, though, is the regulations which govern commercial installation work in Akron.

"The union rules here demand that every commercial installation must be put in by a member of the plumbers' and steamfitters' union. These men know little or nothing about commercial installation work — all they're really interested in is the money they'll get for doing the job.

"We have to pay them union wages —$1.25 an hour—and have one of our own installation men there besides, to tell them how to do the job. It's just a double expense from our standpoint. The union members don't even furnish their own tools—our men have to bring the tools along to every job, or there'd be just that much more delay, at our expense.

Plenty of Loafing

"Unless our man tells him just what to do next, the union man will sit around and loaf all he can—he's getting paid for it.

"And they won't even let the man we have on the job pick up a tool to hand to the union man. If he does, the union man will drop the one he has and refuse to pick it up until the non-union man has dropped his.

"The regulation wouldn't be so objectionable if the union men understood their work on commercial installations, and if they could be given a job to handle without any assistance from our man.

"But the way things now stand, we pay them for their man's time, and have to have an extra man of our own there to check up on them and see that the job's done right.

"Why, most of them don't even know what connections to make, and where to make them. They just sit around until our man tells them what to do. He has to be on top of the job all the time, or we'd never be sure it was being put in properly."

Balancing Heat Loss Is Air Conditioning's Job Says A. C. Willard

URBANA, Ill.—The sole purpose and the ultimate objective in the development of both summer and winter air conditioning is to make human being comfortable, President Arthur Cutts Willard of the University of Illinois told members of the Junior Academy of Science in a recent radio address.

"This involves, during much of the year in this country, the maintenance of (1) a proper atmospheric environment, and (2) a proper physical environment, both of which must be agreeable to the occupants," Mr. Willard said.

Human comfort is successfully accomplished, he added, when we are unconscious of the necessity for any physiological adjustment to our environment, atmospheric or otherwise. "By physiological adjustment, I mean such physical reactions as perspiring and shivering, to take extreme cases," he said.

"Therefore, we may say that human comfort prevails whenever the heat loss from the body is exactly balanced by the heat production of the body, and we are not conscious of any physiological adjustment in order to maintain such a balance."

To preserve the balance between the heat production in a person and the heat loss, the air-conditioning engineer has devoted his energies to the factors on the heat loss side of the equation—since there is little he can do on the other side, Mr. Willard explained.

"For conditions of rest, the heat dissipation amounting to about 400 B.t.u. per hour an average adult is divided approximately into radiation, 210 B.t.u.; convection (still air), 90 B.t.u.; and evaporation, 100 B.t.u. (without sensible perspiration).

"Our problem is to create and maintain an atmospheric and structual environment in which the body heat losses will occur by the methods and in the amount just indicated. It is apparent that radiation, which is quite independent of the atmospheric environment but wholly dependent on the structural environment, disposes of more than half of the body heat production when the individual is at rest and comfortable," he said.

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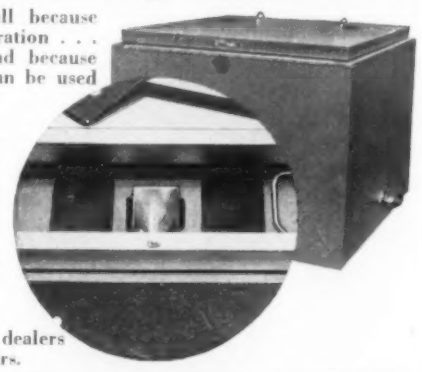

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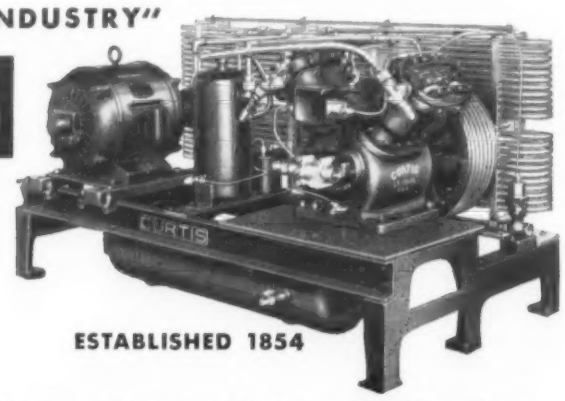

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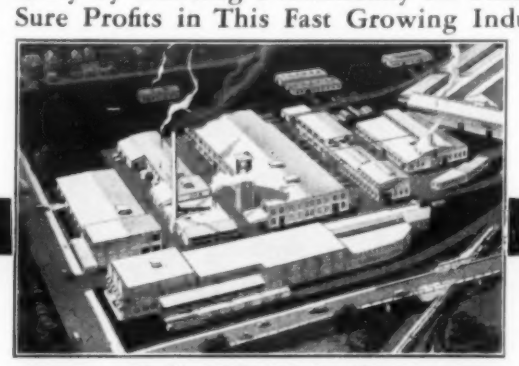

Air View of Curtis 20 Acre Plant

Curtis is a well integrated institution having its own gray iron foundry, brass foundry, machine shop, pattern shop, tool room, electric welding department, structural shop and power plant.

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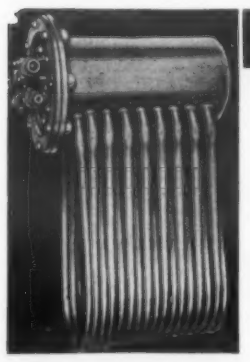

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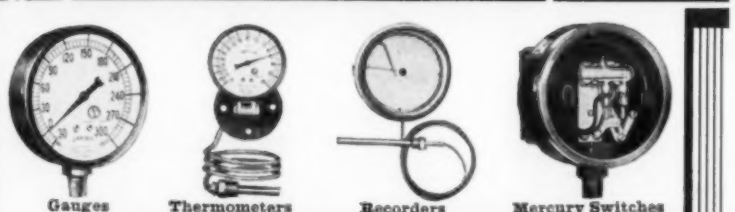

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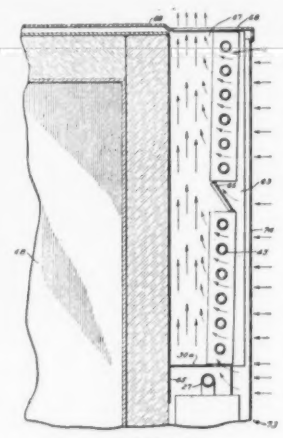

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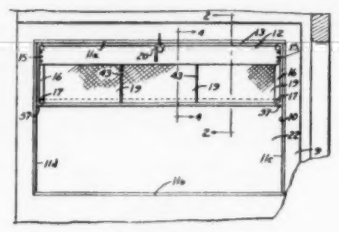

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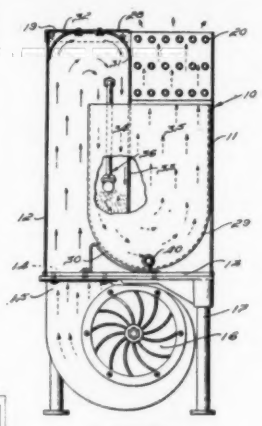

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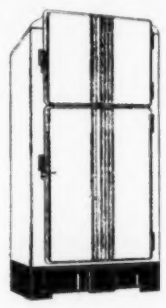

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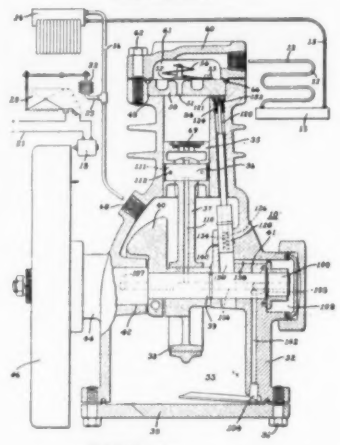

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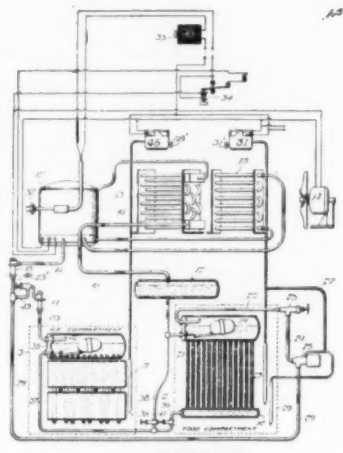

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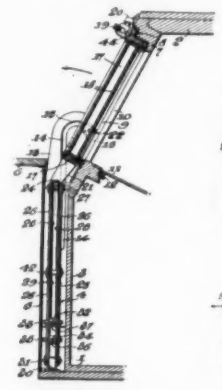

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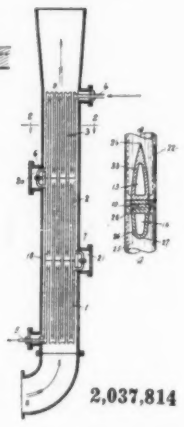

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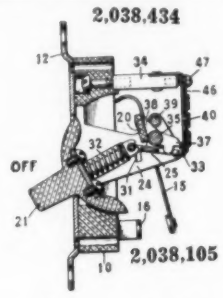

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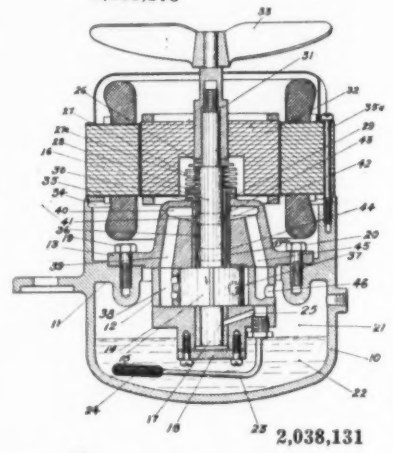

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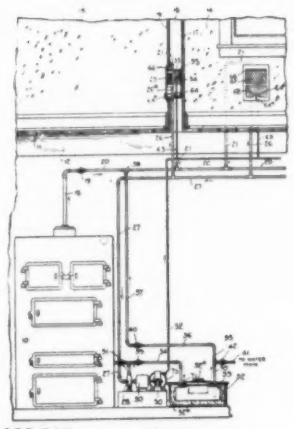

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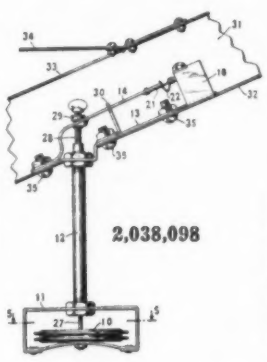

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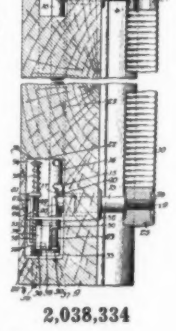

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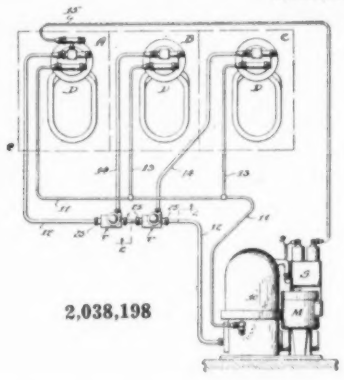

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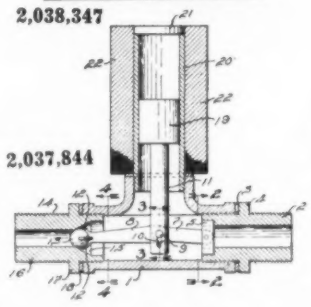

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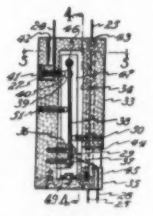

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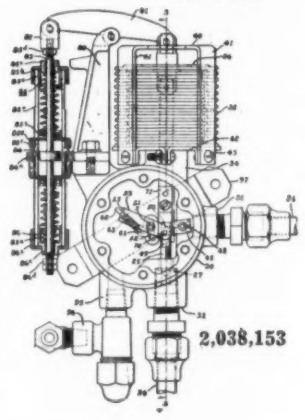

2,038,153

Patents

Issued April 21, 1936

2,037,760. AIR CONDITIONER. Sargent Chapman, Dayton, Ohio. Application May 8, 1935, Serial No. 20,422. 11 Claims. (Cl. 261—102.)

2,037,782. REFRIGERATION. William R. Hainsworth, Larchmont, N. Y., assignor, by mesne assignments, to Servel, Inc., Dover, Del. Application April 27, 1934, Serial No. 722,640. 24 Claims. (Cl. 62—119.5.)

2,037,814. HEAT EXCHANGER. Walter Gustav Noack, Baden, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland. Application July 20, 1933, Serial No. 681,344. In Germany July 26, 1932. 19 Claims. (Cl. 257—223.)

2,037,831. AIR CONDITIONING SYSTEM. Allen C. Staley, Birmingham, Mich., assignor to Chrysler Corp., Detroit, Mich. Application July 19, 1934, Serial No. 735,938. 11 Claims. (Cl. 257—138.)

2,037,844. SOLENOID VALVE. Judson W. Wright and Edgar H. Glinz, Detroit, Mich. Application March 1, 1935, Serial No. 8,799. 3 Claims. (Cl. 137—139.)

2,038,035. DISAPPEARING DROP DOOR FOR REFRIGERATOR AND DISPLAY CABINETS, BINS, ETC. George E. Friedrich, San Antonio, Tex., assignor to Ed. Friedrich, Inc., San Antonio, Tex. Application Dec. 19, 1935, Serial No. 55,258. 7 Claims. (Cl. 312—192.)

2,038,098. THERMOSTATIC SWITCH. John E. Carlson, Forestville, Conn., assignor to The Trumbull Electric Mfg. Co., Plainville, Conn. Application May 26, 1934, Serial No. 727,654. 4 Claims. (Cl. 200—140.)

2,038,105. THERMOSTATIC OVERLOAD SWITCH. Herman J. Hammerly, New Britain, Conn., assignor to The Trumbull Electric Mfg. Co., Plainville, Conn. Application Dec. 24, 1934, Serial No. 758,913. 11 Claims. (Cl. 200—116.)

2,038,131. LUBRICATING SYSTEM FOR COMPRESSORS. William Edward Richard, Evansville, Ind. Application Aug. 19, 1933, Serial No. 685,803. 6 Claims. (Cl. 230—207.)

2,038,153. REFRIGERATING APPARATUS. Gilbert H. Williams, Dayton, Ohio, assignor, by mesne assignments, to General Motors Corp. Application March 30, 1929, Serial No. 351,363. 5 Claims. (Cl. 137—153.)

2,038,176. COMPRESSOR UNIT. Harry B. Hull, Dayton, Ohio, assignor, by mesne assignments, to General Motors Corp. Application June 30, 1930, Serial No. 465,022. Renewed Jan. 6, 1934. 8 Claims. (Cl. 230—29.)

2,038,198. AUTOMATIC CONTROL FOR REFRIGERATING APPARATUS. John R. Replogle, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich. Application Aug. 22, 1927, Serial No. 214,559. 15 Claims. (Cl. 62—3.)

2,038,334. REFRIGERATOR LOCK. Lloyd Anderson, Rockford, Ill., assignor to National Lock Co., Rockford, Ill. Application Sept. 4, 1934, Serial No. 742,571. 3 Claims. (Cl. 292—166.)

2,038,347. AIR CONDITIONED HEATING AND COOLING SYSTEM. Edward S. Cornell, Jr., Larchmont, N. Y., assignor to American Radiator Co., New York, N. Y. Application Aug. 29, 1933, Serial No. 687,376. 13 Claims. (Cl. 257—8.)

2,038,376. AUTOMATIC THERMOSTATIC SWITCH. Edmund B. Moore, Brooklyn, N. Y. Application Sept. 11, 1934, Serial No. 743,499. 9 Claims. (Cl. 200—138.)

2,038,434. REFRIGERATOR. Carl E. L. Lipman, Chicago, Ill., assignor to Lipman Patents Corp., Chicago, Ill. Application July 30, 1932, Serial No. 626,301. 9 Claims. (Cl. 62—116.)

DESIGNS

99,381. DESIGN FOR A REFRIGERATOR. William Archibald Welden, Stamford, Conn. Application Dec. 27, 1935, Serial No. 60,305. Term of patent 7 years.

PATENTS

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The $500 display is now a part of the company's display room at 901 West Jackson blvd.

Appliance Store Opened By Service Man

BALTIMORE—Roland R. Eppley, formerly radio and refrigerator service manager at Sandler Bros., appliance and furniture store, recently opened the Roland Radio Electrical Appliance Co. here.

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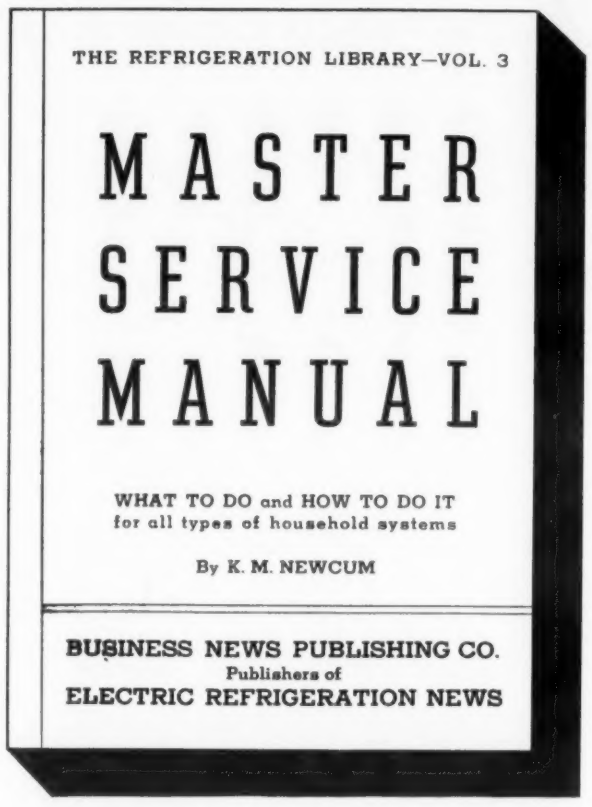
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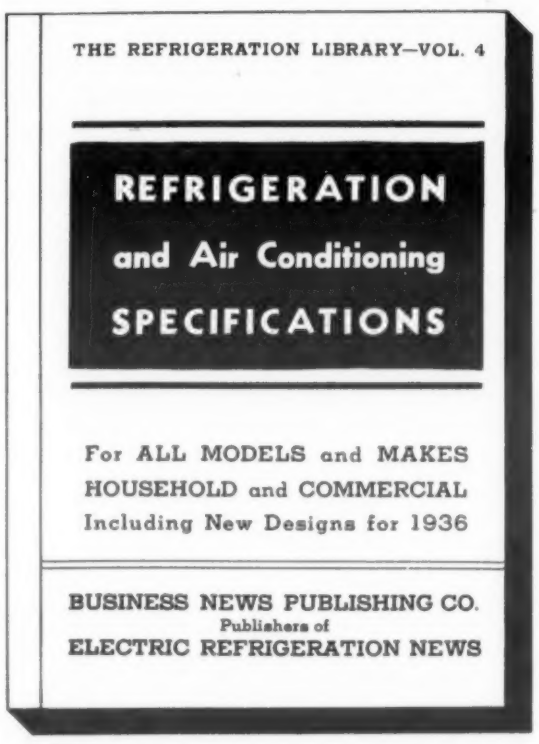

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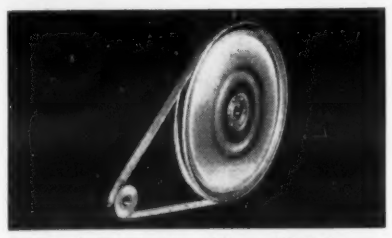

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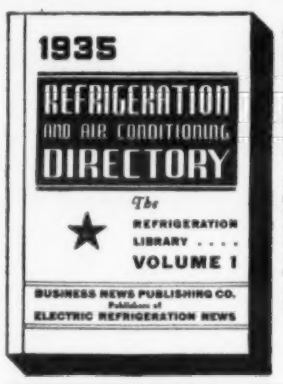

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Mills Rules Detroit License Necessary For Employer Only

DETROIT—Additional information relative to requirements for installing and servicing refrigerating equipment under the recently passed Detroit city ordinance, which became effective April 8, was sent to installation and service firms and individuals last week by Halstead H. Mills, chief safety engineer of the Department of Buildings and Safety Engineering.

Only the person, firm, or corporation who contracts to do service or installation work needs to be licensed, Mr. Mills' bulletin states. Employees of licensees who actually perform the field work need not be licensed.

In applying for licenses under the ordinance, applicants are required to give the name of the person or company with whom they are employed; number of years of employment; and the types of refrigeration with which they are familiar, together with what field or fields the experience covers—domestic, commercial, multiple, or industrial.

Individual applicants are required to present their applications in person; corporations or companies may be represented by a responsible agent. All applications must be accompanied by an approval surety bond in the amount of $1,000, executed on the form of bond which has been approved by the department.

If the application shows conclusively that the applicant has had the installation and servicing experience required by the ordinance, three years, the license will be granted.

First annual license fee is $25, and all licenses will expire on Dec. 31 of each year. Renewal fees are $10, if obtained within 60 days after the date of expiration, or before March 1 of the following year; otherwise the renewal fee will be $25, the same as for the original issue.

Licenses for firms now in the installation or servicing business must be obtained before June 1 of this year.

MacMillan, Freedlander Are Advanced By Dayton Rubber Co.

DAYTON—At a recent meeting of the board of directors of the Dayton Rubber Mfg. Co., John A. MacMillan was elected chairman of the company and of the board, making him chief executive of the company, and A. L. Freedlander, who has served as vice president for the past 16 years, was made president.

Mr. Freedlander was formerly in charge of the research and production departments, and will now head all the operating departments of the business, including distribution.

In making the announcement, Mr. MacMillan said that his new duties would be less exacting, and would give him more time for broad matters of policy and expansion at home and abroad.

Dayton makes cog-belt transmission drives for machinery and appliances of all kinds and V-belt drives for railroad-car lighting and air conditioning.

DuPrene Used as Base Of New Belting

WILMINGTON, Del.—A new belting, using as its base a synthetic rubber called DuPrene, and said to be impervious to excessive oil, has been announced by Dayton Rubber Mfg. Co. It is called the Dayton Daycoil oilproof V-belt.

In tests made in the field before announcement to the trade, the belts were run dripping with oil, under full rated load, with reverse idlers and other attachments to stress strain and intensify wear. Where ordinary belts would swell, burst their coverings, and finally go to pieces under the tests, the new belts showed no signs of swelling, stretching, or wearing, the manufacturer claims.

Frank B. Walker Joins Standard Body

NEW YORK CITY—Frank B. Walker, formerly with Kelvinator Corp., recently joined Standard Body Corp. as sales executive for the ice cream cabinet and replacement parts department.

Mr. Walker was also at one time with the Nizer Corp. and the Dairymen's League. He will supervise the territory between Washington, D. C., and New York City.

Witte Takes New Post

SEATTLE—A. M. Witte recently joined F. B. Connelly Co., distributing firm here, and will work in the metropolitan areas of Seattle and Tacoma.

Air Conditioning

Research Shows Ventilation Requirements Today Are Lower Than Old Standards Particularly Where Cooling Is Used

BOSTON — Minimum ventilation (fresh air) requirements for comfort and proper odor control for persons in an enclosed space will depend upon the conditions in each case, but tests have established that where the air for the space is cooled and dehumidified, the ventilation requirements will be less than if cooling was not applied, it has been revealed in research conducted under the direction of Prof. C. P. Yaglou at the Harvard School of Public Health.

The ASHVE provisional standard of 10 c.f.m. per person is a fair average value for adult persons where the air space per occupant is between 250 and 500 cu. ft. per occupant, says Prof. Yaglou, but it falls far short in such a condition as that of a grade school attended by children in poor districts, and is somewhat too much when the air is cooled and dehumidified.

Most of the odors in living rooms come from the occupants themselves, relates Prof. Yaglou. Sources of body odors include foul breath, decaying teeth, sweat secretions, gases from the stomach and bowels, and decomposition of matter from the skin and clothes.

During the tests it was shown that odors were given off by clean and healthy persons right after they had taken a bath.

Tested by Human Reaction

The tests were conducted on the basis of the theory that the human nose when properly utilized affords a better criterion of the quality of air in occupied rooms than any of the known physical or chemical tests, and that the best way to get a good impression of ventilation conditions in a room is to pass quickly from clean outdoor air to the room to be tested.

Experiments were conducted in two adjoining rooms. The rooms were practically identical, having a floor area of 155 sq. ft., and a net air space of about 1,410 cu. ft.

One of the rooms, known as the experimental room, was occupied by the subjects who constituted the source of odor production. The other room served as a control room for the judges who estimated the odor intensity in the experimental room.

A small, tight door was cut in the common partition between the rooms to allow direct passage of the judges from the control room to the experimental room in order to judge the odor intensity and air quality.

Separate air-conditioning units, installed in the corridor, kept the two rooms at approximately the same temperature and humidity in any given test, so that the only variable factors in the two rooms were the outdoor air supply and the number and type of occupants.

Centrifugal Humidifier

One of the conditioners was provided with a centrifugal humidifier capable of saturating the air passing through it under the experimental conditions. The other one was of the conventional spray-dehumidifier type.

Rated capacity of both conditioners was 1,000 c.f.m., but the orifices employed for measuring airflow reduced it to about 500 c.f.m.

Air was introduced to the rooms near the ceiling through 14-in. round ducts running along the entire length of the rooms, and fitted with splitters. Ducts were perforated over half of the periphery with a multitude of holes ½-in. in diameter, and 2½ in. on centers, facing toward the ceiling. Recirculated air was withdrawn at floor level through a 10-in. round duct. Exhaust air was allowed to escape to the corridor through sensitive check louvres attached near the bottom of the doors.

During the tests the experimental room was occupied by 3, 7, and 14 subjects in different series of experiments, so as to obtain three different floor areas per person—11, 22, and 52 sq. ft.; and three different air spaces of 100, 200, and 470 cu. ft. approximately.

Air flow in the experimental room was varied from about 2 to 30 c.f.m. per person in different experiments. In one series the total air supply remained constant at 30 c.f.m. per person, but the amount taken from out of doors was varied from 2 to 30 c.f.m. In another series only outdoor air was circulated through the experimental room.

In a third series the mixture of outdoor and recirculated air was washed, cooled, humidified, or dehumidified in order to determine the effect of these processes on odor removal and on minimum ventilation requirements.

As a rule each test consumed a whole morning or a whole afternoon. Before and after each test the rooms were thoroughly ventilated in order to get rid of residual odors, and the air-conditioning apparatus was kept clean at all times.

To get uniformity in results and to cover a fair cross-section of socio-economic status, the subjects were divided into five groups: (1) sedentary men and women of average socio-economic status between 16 and 60 years of age; (2) grade school children between 7 and 14 years old of average socio-economic status; (3) laborers; (4) school children of the poorer class; (5) school children of the better class.

Results of the tests showed that body odor was strong and disagreeable when the outdoor air supply per person was under 3 c.f.m. The minimum air supply required to dilute the odor to the allowable intensity under given conditions of 200 cu. ft. air space per person, no air conditioning, is about 16 c.f.m. per person.

Recirculation does not seem to affect the odor strength to any great degree, test results showed. From the standpoint of body odor, says Prof. Yaglou, a room can be ventilated just as well with an outdoor air supply of 16 c.f.m. per person as with a total supply of 30 c.f.m., about one-half of which is recirculated.

Disadvantages of Recirculation

It is pointed out that recirculation is often desirable for adequate distribution and temperature control, but one of the disadvantages is that it smells up the ducts, fans, etc., and unless the system is flushed frequently with clean air, higher air quantities will be needed to obtain satisfactory results.

Number of persons occupying a room appears to be quite an important factor affecting odor intensity and air requirements, the tests showed.

With 470 cu. ft. of air space per person, which is more or less representative of conditions in homes, uncrowded offices, and the like, the air requirement from the standpoint of body odor was 7 c.f.m. per person; with 200 cu. ft. air space, it was about 16 c.f.m. per person, and with 100 cu. ft. air space, it was nearly 25 c.f.m., or three and one-half times as great as with an air space of 470 cu. ft.

With constant air supply the intensity of body odor varied inversely with the logarithm of the air space.

Arrangement of Conditioners

Tests were also made on the influence of air-conditioning process on odor intensity and ventilation requirements. Three different arrangements of conditioning apparatus were used:

(1) Mixture of outdoor and recirculated air passed through a conventional spray-type dehumidifier for cooling and dehumidifying the air of the experimental room in warm weather.

(2) Mixture passed through a centrifugal humidifier, for humidifying the air in cold weather.

(3) Mixture passed over a surface cooler through which cold water between 35 and 50° F. was circulated. The cooler used in these experiments was capable of lowering the temperature of the air passing over it (210 c.f.m.) through a maximum of about 10° F.

The surface cooler absorbed the least amount of odor, and the dehumidifier the most. The absorption of the centrifugal humidifier was only slightly greater than that of the surface cooler.

The outdoor air requirement was correspondingly reduced from 16 c.f.m. per person with simple ventilation to about 13 c.f.m. per person when the mixture of outdoor and recirculated air was passed through the centrifugal humidifier or over the surface cooler, and to less than 4 c.f.m. per person when the mixture was passed through the spray dehumidifier. In the last instance the odor intensity appears to be almost independent of the outdoor air supply.

Prof. Yaglou points out that while the results obtained from the surface cooler and centrifugal humidifier will probably be realized in actual practice under similar operating conditions, the striking performance of the dehumidifier may be more or less limited by the following factors: (1) capacity of the dehumidifier spray system (which was high in the tests); (2) cleanliness of the spray water and water-storage capacity of the dehumidifier tank; (3) temperature of the spray water; (4) degree of flushing of the eliminator plates.

Letters from Service Men

Confirms Editor's Report Of Hawaiian Interview

Honolulu Technical School
800 S. Beretania St., Honolulu
May 6, 1936.

Publisher:

Your reply to the protesting letter of Mr. Corlette of the Balsam Wool Co., was, in my opinion, indicative of what should be seen more often in the refrigeration industry. Usually the industry knows little of the other man's product and cares less. All we usually do is knock.

Being as I am, manager of the only refrigeration school in the islands, I buy used refrigerators from all dealers, although, doing most business with the G-E distributor here. I am at times ashamed to note the petty lengths to which salesmen and sales managers will go in knocking their competitors product. I know of several G-E salesmen who do not even know what a sylphon seal is. I know at least two Frigidaire men who knock the Electrolux but haven't the slightest idea of the absorption system. I hear the G-E knocked as being noisy, which it certainly isn't. I hear the Electrolux knocked as being smelly, which is all hooey. I hear the Kelvinator knocked as being a cheap product with a sealed unit, which it is not, and so on.

To hear a trade paper speak its mind as you have done is happy news. If everyone in the industry would realize that, while their product is the best they know how, maybe the other fellow's is as good or better, we would all be a lot better off.

When Mr. Taubeneck was in our shop he was amazed at the terrible toll climate takes on refrigerators in the islands. I believe I mentioned at that time that we had found cork to be the best insulation. I also believe I mentioned that a certain woolly type of insulation absorbed moisture badly. If I mentioned a trade name I have forgotten it, but since Mr. Taubeneck in his short time here saw and reported as accurate a picture of these islands as he did, I guess that I possibly did mention trade names. However, I'll back up any statement made with proof if needed.

Here at the school, a school located in about the world's toughest test ground for refrigeration, we see something that manufacturers never see and that is—their product after several years use just as it comes off the job. At least 10 times a week a prospective refrigerator buyer, harsased by a dozen salesmen, calls in or phones me for a candid opinion of what is the best refrigerator to buy—is the G-E, or the Frigidaire, or the Electrolux, or the Grunow, etc., the best buy? Some even offer to pay for a truthful answer.

Handling, as we do every brand ever sold in the islands, we have come to know all makes of condensing units, insulation, evaporators, cold controls, expansion valves, etc. As soon as an old box reaches us, the unit comes out, the cabinet is torn down, and the whole thing thoroughly inspected. Then we can see just what has happened during the life of the machine. And some of the things we learn are truly amazing. Articles with well known names, recognized as the trade leaders, are found to be anything but perfect. Cabinets, said to be excellent, prove to be anything but that. Chilling units, controls, insulation, that bear well known names prove wanting after a few years here.

However, were I a manufacturer, I would appreciate, rather than criticize, a frank statement about my product even though it was seemingly detrimental. I try to make our school as near perfect as possible by giving the students actual work on all types of machines, both here and in the field. They work on domestic and commercial refrigerators of all types and if I can be shown a more efficient method of teaching them, I'll be glad to hear it. So will they.

Perhaps, it would be better for all if we would quit thinking that what we do is Utopian. Admitted we are in an age of competition, wouldn't it be better if we gave our salesmen the truth about the other guy's refrigerator, insulation, cabinet, control, or what have you? Personally I feel that selling refrigerators by emotional appeal is OK, but I have been surprised by the number of women buyers we have who know what a sealed unit is and how it works.

A salesman with something to say besides price, style, and size of his box and then proceeds to knock the other boxes, will find his audience receptive. I have sold several refrigerators to people who wanted to know how they worked. Thirty minutes spent telling resulted in a sale where nothing else would have worked.

Let's quit worrying about finding reasons to knock the other guy—let's analyze our own product—let's cut out giving ageless guarantees and being made suckers by a public which only asks a 3 month's guarantee from its auto agency—let's cut out discounts for the stenographers' friend's friend and other such hooey and we'll all be getting along dandy.

In a few years we're going to have the used refrigerator problem with us just as did the auto industry and if we get together we'll make it. If we don't—

S. E. Giles.

Depression Hasn't Daunted This Ambitious Young Man

Mr. Cockrell:

In my opinion of the Refrigeration and Air Conditioning Institute (of Chicago) course, you must consider that I have been only enrolled five months, have studied 40 Work Sheets of the 97 and also must spend two weeks at their Chicago Laboratories. So you see that I have only completed about one-third of the course, but I must say that their course is as complete as can be gotten. You not only study one make or type but they make you learn all types.

I have studied domestic refrigeration and am now studying commercial refrigeration series. Soon I will be studying air conditioning and then I will go to their laboratories and finish their training and begin an interesting career (I hope!).

I was interested after I had studied their domestic refrigeration series to look at all the new models of refrigerators so I went in a couple salesrooms and looked over some of the 1936 refrigerators, cabinet construction, evaporators, compressor and condensing units, and the refrigerant used. I found it very interesting and beneficial. I saw that everything I had studied had been taught to me in the course so I knew by looking at these refrigerators that I had learned very much from the course, so far.

I have studied very hard and think that since I am going to get in the refrigeration and air-conditioning field some day, that by studing real hard now it won't be quite so hard later. I am now barbering, working about 60 hours per week and studying the course from 10 to 15 hours per week so you see I am a little busy "working" now. I am only 21, graduating from high school in 1933. Since then I have been studying something ever since. "I finished to begin."

In closing I must say I enjoyed and got very much information from Grover Townsend's letter published in the News Feb. 26, 1936, issue. I would appreciate if you would publish more letters of this sort or to receive letters from students or graduates about their experiences or their course.

Keep up the good work in the News of promoting good fellowship and keeping everyone posted on all new subjects.—Richard J. Souden, (Refrigeration and Air Conditioning Student No. R A 5129), 43 N. Diamond St., Shamokin, Pa.

Many Helpful Suggestions

I am enclosing five dollars ($5.) for which I would like to have a copy of the Master Service Manual; also, I want to renew my subscription for the Electric Refrigeration News. My expiration date is April 23, of this year.

In a short time, I expect to have my course completed which I am studying at home. I want to be permanently connected in the refrigeration industry. I would like to have my name added to your catalog mailing list you are now compiling.

At this time, I wish to state that I have thoroughly enjoyed your "paper." I have received many helpful suggestions. Thanking you.—A. Safine, 952 Sutter St., Apt. 609, San Francisco.

Specifications Issue To Be a Textbook

California Refrigerator Co.
1077 Mission St., San Francisco, Calif.
May 7, 1936.

Publisher:

Please send us by first mail 30 additional copies of the Household Refrigeration Specification Edition of the Electric Refrigeration News of April 22, 1936. The 50 copies that you sent us have all been sold, and we would be surprised if we would not soon order 100 copies more.

You will be interested to know, and I believe that if I were you, I would inform my advertisers and prospective advertisers that 3 young men, students in the local refrigeration and air-conditioning school came in yesterday, especially to secure a copy of the Household Refrigeration Specification Edition of the Electric Refrigeration News, and while they were here they each took a copy of the News of April 29, 1936, also. These boys stated that they intended to use the Household Refrigeration Specification Edition as one of their text books, and, no doubt, will use this particular News for many years.

Don't forget that these 3 boys, in less than a year, will have jobs, either with a dealer handling some special refrigeration, or with some independent service man, and they will be specifying or suggesting to their boss the kind of unit, control, expansion valves, refrigerant, copper tubing, etc., to go on all of their jobs.

I am sending our good friend, George Taubeneck, a copy of this letter to Germany, and maybe he will use this thought of these students (soon to be service men) in some of his short conference meetings or his big speech at the World's Refrigeration Conference Meeting in Holland.

More power to the Electric Refrigeration News with all of its wonderful *enterprising ideas!*

Clarence F. (Sandy) Pratt,
President.

Keeps Him on the Up and Up

Please extend my subscription of Electric Refrigeration News for another year. I find a subscription is necessary to be on the up and up in the industry. Also enter my name on the mailing list of catalogues. Enclosed is a check for $5 to cover cost of Service Manual and subscription to the News. I would appreciate your sending the Manual to me as soon as possible.—Robert L. Smirnoff, 4207 39th St., Washington, D. C.

Needs Materials

Kindly find enclosed order blank filled out for subscription to Electric Refrigeration News and your recently published Master Service Manual. Also please find check in the amount of five dollars to cover same.

I will be indeed grateful if you will place my name along with others on your catalog mailing list, as I have only been in for myself since last August and have hardly any material for figuring on new installations.—H. Morrison Spencer, 360 North Pearl St., Bridgeton, N. J.

Service on a Contract Basis

Enclosed find money order for $5.00. Send me the Master Service Manual and my advance order for the Refrigeration and Air Conditioning Specification Book. Also please enter my name on your catalog Mailing Service.

I am servicing for 4 stores that sell refrigerators also for the Pittsburg Plate Glass Co. where I am employed.

I gain a great deal of knowledge from reading the News, and will sure renew my subscription in June.—L. D. Sherman, R. 1, Box 265 C, Henryetta, Okla.

News Provides Practical Ideas

Enclosed please find money order for $5.00 for one year's renewal of your magazine the Electric Refrigeration News and also for the book Master Service Manual.

As I have written before, this magazine is indispensable to me as I am an independent service man and I have been able to get quite a number of useful ideas which I have been able to put in practice.

Good luck and keep up the good work. Thanking you for many pleasant hours of reading matter.—Stephen Kapner, 4020 N. Central Park Ave., Chicago, Ill.

Am an independent service man and recently subscribed to your paper, also the Service Manual. Would like to be placed on your catalogue mailing list.—C. F. Linderman, 526 Williams St., Springfield, Ill.

Service Men Want Information On Replacement Parts & Supplies

Hubble's
Radio Service, All Standard Parts, Work Guaranteed
70 Jefferson St., Perth Amboy, N. J.
March 24, 1936.

Gentlemen:

As a regular reader of your paper, I would very much appreciate your placing me on your mailing list.

F. Hubble.

Allam & Williams
Refrigeration Service
117 E. Fairview St., Bethlehem, Pa.

Gentlemen:

Kindly place our name on your list of Catalogue and Trade Literature. Thank you.

M. W. Allam.

Riches
Refrigeration and Electrical Service
2150 Brookford Dr., Toledo, Ohio

Dear Sir:

I have been a reader of your paper for about two years and enjoy reading it very much. I would like to have you put my name on your Catalog Mailing List.

T. Riches.

A note attached to a subscription order: "Put us on catalogue mailing list."—Carl R. Nevinger, Nevinger Electric Co., First and Main Sts., Greenville, Ill.

A note written on a Master Service Manual order: "Please enter my name on your mailing list."—E. A. Bauser, Box 58, Bunker Hill, Ill.

Please list me in your catalog mailing list as a serviceman. I am also a reader of the Electric Refrigeration News.—Nicholas Steer, 942 State St., Camden, N. J.

Please enter my name on the "Catalog Mailing List," and trade literature. I am a subscriber to Electric Refrigeration News. Thank you.—O. A. Finke, Apt. 7, Fontenelle, Scottsbluff, Nebr.

Please enter my name for the "Catalog Mailing Service" for service men.—Samuel Rosen, R. R. Home Appliance Co., P. O. 62, Monticello, New York.

I would appreciate it if you will include my name on the Catalogue Mailing Service List that you are forming. I am a subscriber to this publication.—William H. Hewlett, 487 Milton St., Nanaimo, B. C., Canada.

I would appreciate it very much if you would also include my name in the catalogue mailing list.—Clement F. Kam, Pearl City, Oahu, Hawaii.

Enclosed please find my check for three ($3.00) dollars covering the 'tariff' on the Master Service Manual.

Please also enter my name on the mailing list you are furnishing to refrigeration manufacturers of parts & supplies. Thanks.—Anderson Electric Motor Service, Rutherfordton, N. C.

I would like to have you place my name on the Catalogue Mailing list.—F. A. Shugart, 405 W. 20th St., Auburn, Ind.

Please enter my name on your mailing list to receive manufacturers' catalogue and oblige.—Thomas Ho, 1808 So. Beretania St., Honolulu, T. H.

I am a subscriber to the Electric Refrigeration News and would never be without it. Will you kindly enter my name on your catalog and literature mailing list.—T. O. Ekstrom, 3077 Florida St., Oakland, Calif.

Enclosed find check for $5.00 for one copy of the Master Service Manual and a one-year renewal subscription to Electric Refrigeration News. Please add my name to your list of Independent Service Men and the catalog mailing list.—J. W. Kessler, Electric Refrigeration Service, Del Rio, Texas.

Enclosed please find $5.00 to cover subscription for Electric Refrigeration News and your Master Service Manual. Also please enter my name on your catalogue mailing list. I am refrigerator serviceman with Fairbanks, Morse & Company, New Orleans Branch.—Joe A. Bradera, 8737 Belfast St., New Orleans, La.

Enclosed you will find our check No. 1234 in the amount of $3.00, for a one year's subscription.

We will appreciate your putting our name on the catalog mailing list.—W. W. Welch Jr., Westinghouse Refrigeration Service, 55 Kilby St., Boston, Mass.

I would like to have my name placed on the catalog mailing list you are forming. Thank you.—W. H. Snyder, 11401 Mark Twain, Detroit, Mich.

INFORMAL TALK NUMBER 49

600 Hours of Study—Plus 100 Hours of Practical Shop Work

That's what the average R-A-C-I new graduate student has behind him when he goes to work for you. You must take off your hat to this fellow. He has ambition, gumption and stick-to-it-iveness that you can use in your business. He has a knowledge of installation and service work and the many technical requirements of the refrigeration and air conditioning business that is exceeded by but few men. Give him a hand.

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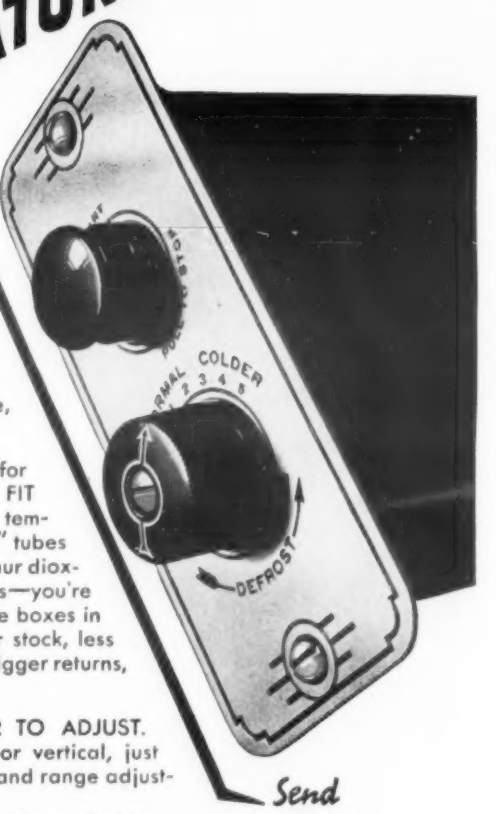
Here are a few reasons for its popularity: Sure protection to motor, wide-range cold control, modern appearance, proved performance.

And here are Service Facts for the Service Man: 4 MODELS FIT NEARLY EVERY BOX. With two temperature models in 24" and 48" tubes or two pressure models for sulphur dioxide and methyl chloride systems—you're equipped to service 99% of the boxes in your community . . . with smaller stock, less money tied up, faster turnover, bigger returns, no shelf losses.

EASIER TO INSTALL; EASIER TO ADJUST. Unit mounts either horizontal or vertical, just two screws to insert. Differential and range adjustment made easily.

Every day more of the millions of old refrigerators move into the zone where they need repairs. With C-H Control that fits 99% of these boxes, that provides every advantage, it is easy to get the customer's O. K. CUTLER-HAMMER, Inc., *Pioneer Manufacturers of Electric Control Apparatus,* 1362 St. Paul Avenue, Milwaukee, Wisconsin.



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CUTLER-HAMMER
REFRIGERATION CONTROL FOR REPLACEMENT SERVICE

Sales Figures

Collection of Sales Figures on Repair Parts Difficult Under Present Conditions

Borg Warner Service Parts Co.
Division of Borg-Warner Corp.
310 S. Michigan Ave., Chicago, Ill.
April 28, 1936.

Gentlemen:

As subscribers to your publication, ELECTRIC REFRIGERATION NEWS, we are interested in obtaining if available the following information:

Total annual sales of repair parts for domestic refrigerators (for either U.S.A. or one or more states).

Total annual sales of repair parts for commercial refrigerators in U.S.A. or one or more states.

The amount of such sales passing to the consumer through dealers in refrigerators and the amount through the independent service agencies.

To the writers knowledge your 1935 MARKET DATA BOOK does not contain this information, nor does the writer know of any other source for obtaining it.

A possible approach to the problem might be the laboratory experience of the various refrigerator manufacturers which might disclose repair per unit for each year of operation. Another approach might be made by securing manufacturers yearly sales of parts to their dealers.

Any data or suggestions you may be able to give will be very much appreciated.

F. H. DEHMEL,
Purchasing Agent.

Answer: We too would like very much to know the total annual sales of repair parts for electric refrigerators, commercial refrigerators, etc.

It is possible that we may be able to obtain some information on this subject later through the recently organized National Refrigeration Supply Jobbers' Association and the new Refrigeration Supplies & Parts Manufacturers Association. No doubt, however, some time will be required before either of these organizations gets around to the job of collecting complete industry statistics.

Even if complete figures were available from these two groups, we would still lack the output of repair parts made by the manufacturers of complete household and commercial systems.

Judging from past experience, the companies in the latter group are not likely to look with favor upon any proposal to collect such statistics. Your own company, for example, objects to the idea of furnishing information regarding the make and other specifications of certain parts used in the current year's models.

You may be interested to know that we have had numerous examples of this inconsistency, namely, requests from certain departments or members of an organization who are very anxious to obtain statistical information and, at the same time, a refusal on the part of other executives of the same organization to furnish that particular data regarding their own products or operations.

Referring to the MARKET DATA BOOK, we have purposely delayed the publication of a new edition for 1936 in the hope that further definite progress could be made in collecting several new types of statistical information which would be very valuable to the industry as a whole.

Prior to the adoption of the statistical program of National Electrical Manufacturers Association the NEWS published estimates of total sales of household electric refrigerators. We obtained information as best we could from a variety of sources and when figures were collected by Nema covering a four-year period which we had previously estimated, it was found that the NEWS estimates were substantially correct.

Under present conditions, however, we do not see any way to get within gunshot of the repair parts figures without resorting to methods which are contrary to our publishing principles. We will be interested in any suggestions on this subject.

Exports of Electric Refrigerators

January, 1936, Shipments Reported by the Bureau of Foreign and Domestic Commerce, Washington, D. C.

	Electric Household Refrigerators Number	Value	Electric Commercial Refrigerators Up to 1 Ton Number	Value	Parts for Electric Refrigerators Value
Austria	9	$ 472	...	$ ...	$ 2,280
Belgium	121	8,968	60	4,192	5,242
Czechoslovakia	270	12,449	...	...	8,802
Denmark	...	...	2	582	4,815
Finland	...	...	2	235	560
France	364	27,945	27	3,128	20,888
Germany	1	104	...	...	32
Gibraltar	...	...	...	...	16
Greece	17	1,667	10	1,872	...
Irish Free State	3	666	...	...	265
Italy	...	...	...	...	357
Malta, Gozo, and Cyprus	...	...	1	67	135
Netherlands	14	1,221	41	3,321	6,541
Norway	4	335	...	...	2,716
Poland and Danzig	7	492	...	...	83
Portugal	2	202	5	735	968
Rumania	...	...	...	...	2,212
U.S.S.R. (Russia)	7	1,134	1	237	990
Spain	67	5,029	22	4,573	2,395
Sweden	75	5,339	19	2,897	7,276
Switzerland	36	2,929	...	...	8,693
United Kingdom	1,624	82,393	112	13,934	141,497
Yugoslavia	...	...	14	1,767	877
Canada	836	34,900	55	6,505	84,355
British Honduras	...	...	...	...	31
Costa Rica	1	99	...	...	18
Guatemala	12	1,162	1	146	...
Honduras	4	279	...	...	44
Nicaragua	1	89	...	...	...
Panama	24	2,674	6	1,021	632
Salvador	3	237	...	...	181
Mexico	374	32,170	56	6,044	4,206
Newfoundland and Labrador	1	61	...	...	41
Bermuda	9	1,214	3	365	694
Barbados	14	1,204	...	...	91
Jamaica	1	114	1	331	47
Trinidad and Tobago	26	2,378	...	...	58
Other British West Indies	21	2,060	2	535	367
Cuba	133	11,305	21	4,239	7,517
Dominican Republic	20	2,078	...	...	167
Netherland West Indies	35	3,010	3	765	258
French West Indies	2	140	...	...	10
Haiti, Republic of	16	1,530	...	...	72
Argentina	61	4,416	2	950	7,560
Bolivia	13	1,185	...	...	307
Brazil	483	40,151	175	19,067	4,926
Chile	22	2,318	4	195	964
Colombia	83	6,999	21	2,143	2,379
Ecuador	14	1,590	...	...	380
British Guiana	6	353	...	...	178
Surinam	5	616	...	...	74
French Guiana	...	...	...	...	49
Peru	85	8,898	11	1,217	1,363
Uruguay	56	3,344	...	...	450
Venezuela	57	4,212	1	129	1,495
Aden	6	486	...	...	207
British India	74	6,939	6	693	6,554
British Malaya	26	2,546	14	2,308	1,524
Ceylon	30	3,628	...	...	523
China	66	4,845	...	...	756
Netherland India	101	8,814	20	3,463	2,274
French Indo-China	15	2,511	1	412	299
Hong Kong	2	288	...	...	583
Japan	1	124	24	3,105	4,796
Palestine	72	7,977	2	267	620
Iran	...	...	...	...	...
Philippine Islands	36	4,030	3	1,318	635
Siam	3	157	...	...	49
Syria	...	...	...	...	35
Turkey	4	343	...	...	357
Other Asia	6	1,136	...	...	...
Australia	62	4,374	3	750	4,784
British Oceania	1	132	...	...	...
New Zealand	35	3,366	16	2,683	2,509
Belgian Congo	1	188	...	...	369
British East Africa	19	1,493	...	...	...
Union of South Africa	224	15,797	102	11,090	15,082
Other British South Africa	9	890	...	...	...
Gold Coast	8	840	...	...	178
Nigeria	...	...	...	...	141
Other British West Africa	...	...	...	...	38
Egypt	37	3,115	1	190	545
Algeria	24	2,202	1	183	374
Tunisia	1	189	1	173	342
Madagascar	12	752	...	...	50
Other French Africa	9	675	...	...	174
Italian Africa	...	...	...	...	95
Morocco	...	...	2	342	1,229
Mozambique	6	659	...	...	5
Canary Islands	6	391	2	171	99
Other Spanish Africa	1	48	...	...	...
Total	**5,936**	**$401,066**	**576**	**$108,340**	**$382,280**
Shipments to:					
Hawaii	217	21,291	38	7,293	4,602
Puerto Rico	59	6,324	5	1,220	2,495
Virgin Islands	1	75	2	284	33

Denmark Household Market Growing

DETROIT—Although the market for household units is increasing, climatic conditions in Denmark make refrigeration firms there devote their energies largely to commercial installations, Aksel Friis, mechanical engineer for the Thomas Sabroe Co., of Aaarhus, said when interviwed on a recent visit here.

"Although we are not afflicted with the extremely hot weather that is a part of your summers, sales of household units are increasing because refrigerators do add to comfort in the home," he said.

The United States, in spite of the fact that many European firms are making units, is still the recognized leader in the refrigeration industry, according to Mr. Friis. He attributes this in part to the intense competition here that makes companies extend themselves to perfect their products.

"We buy a considerable part of the mechanical equipment of our output in this country, and a standardization in manufacture is gradually coming about," he said. However, it is his belief that a reciprocal tariff treaty would improve trade between Denmark and the United States.

The Thomas Sabroe Co. has installed refrigeration units in more than 30 ships, some of Russian register, many Japanese, and other of Scandinavian ownership.

One of the latest vessels to be equipped by the company is the "Canada," belonging to the East Asiatic Co., which plies between West Coast ports of the United States and Europe.

Another recent contact handled by Sabroe was the outfitting of a Russian fishing boat. Old fishing grounds have become so depleted that commercial companies are sending their fleets farther and farther out, making refrigeration of the catch imperative, the visitor claimed.

Labor turnover is no problem for the Sabroe Co., which has approximately 400 persons in its employ; in several instances, Mr. Friis says, three generations of one family are found on the roster. This is partially explained, he maintains, by the fact that in Denmark, mechanics have to undergo a four-year apprenticeship before they qualify as journeymen.

G-E Declares Dividend Of 25 Cents a Share

NEW YORK CITY—A dividend of 25 cents, payable April 25 to stockholders on record March 13, was declared by General Electric Co. at a recent meeting of its directors here.

Sales billed amounting to $208,733,000 showed a 27% increase over the $164,797,000 for 1934, in the preliminary results for 1935 presented at the meeting.

The statement of orders for 1935, amounting to $217,361,000, compared with $183,660,000 for 1934, an increase of 18%, was published and sent to stockholders in January.

Net profits on common stock for the year amounted to $27,843,000, equipment to 97 cents a share, compared with $17,151,000, or 59 cents a share, for 1934.

At the meeting, Charles Neave, member of Fish, Richardson, and Neave, attorneys, and counsel for the company, was elected to the board of directors.

The Buyer's Guide

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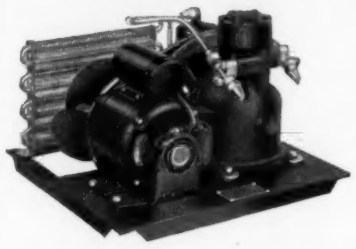

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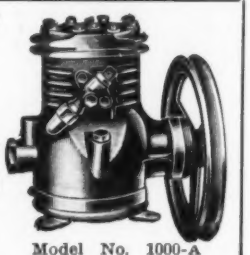

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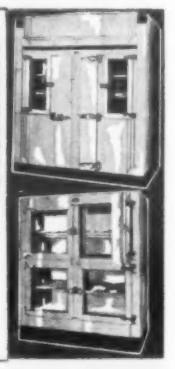

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The Refrigeration Engineer's Manual

By S. L. Potts

Description of Absorption System Parts

Chapter 9— Absorption Refrigeration

Strong liquor pump. This is a small pump of any type, used to move the strong ammonia liquor from absorber under low pressure into the generator which is under high pressure. Any type pump made of materials that are non-corrosive under the action of ammonia liquor will be satisfactory.

Analyzer is placed very close to the generator. It is usually placed on top and made part of the generator. The function of the analyzer is to break up the incoming strong liquor into small drops of spray so that the heat can act upon it quickly and the gas contained in the liquor can be liberated easily and escape. It takes many different forms but the one shown is typical and shows its action.

The hot ammonia and water vapors produced in the generator must rise in the analyzer in the opposite direction to the incoming liquor. In rising, the hot vapors meet the incoming strong cold liquor and the action of driving off the gases takes place in the analyzer as well as in the generator. The hot vapors from the generator are partly cooled in the analyzer before entering the rectifier.

Generator is opposite in action to the absorber. The generator receives the cold strong liquor from the absorber. In this state, it contains a large volume of ammonia gas absorbed in the liquor. The generator immediately starts to heat the strong liquor and drive off the ammonia gas. The gas rises through the analyzer and out to the rectifier. The gas in passing through the analyzer becomes cooled somewhat, but not enough to produce any ammonia condensation.

Some water vapors formed in the generator may be condensed in the analyzer and return to the generator.

Rectifier. The function of the rectifier is to remove or separate the ammonia and the water vapor contained in the gas rising from the generator. The condensing temperature for water vapor is much higher than the condensing temperature of the ammonia vapor. The rectifier must be kept at a temperature high enough to allow all the ammonia gas to pass without any condensation of ammonia, but low enough to condense all the water vapor that might rise with the gas.

The ammonia gas passing to the condenser must be dry or anhydrous ammonia. If water is allowed to pass the rectifier, it will be frozen in the evaporating coils and cause troubles there. Any water vapor that condenses in the rectifier is trapped off and returned to the generator. A very common practice is to connect the warm water waste from the condenser to the rectifier because the waste water from the condenser is still cool enough to produce water vapor condensation in the rectifier and is not cool enough to produce condensation of the ammonia gas.

Faulty rectification due to faulty design or to faulty operation causes great losses. If the rectifier is operated at too low a temperature, some of the ammonia gas will condense and return to the generator. Every part of ammonia condensed in the rectifier is a total loss to the refrigerating system and requires heat to again drive it off as gas.

If the rectifier is operated at too high a temperature, some of the water vapors will pass into the condenser and receiver. They will cause losses in the evaporating coils by freezing inside, coating the inner surface with ice causing a reduction of evaporating surface.

The temperature of the rectifier should be kept 10 to 20° F. above the condensing point of the ammonia. Rectifiers frequently take the form of atmospheric or double pipe condensers.

Heat exchanger. The name gives a very good idea of what happens in this piece of equipment. The heat is exchanged, that is, it is taken out of one liquor and put into another liquor where it will do more effective work.

The liquor coming from the absorber is cold and strong. If this liquor is pumped into the generator direct, it will have a great cooling effect on the generator, requiring a much greater amount of steam for the proper operation there. The generator must be kept hot in order to drive off the ammonia gases. The strong cold liquor entering will make this high temperature in the generator more difficult to maintain and require more steam to produce it.

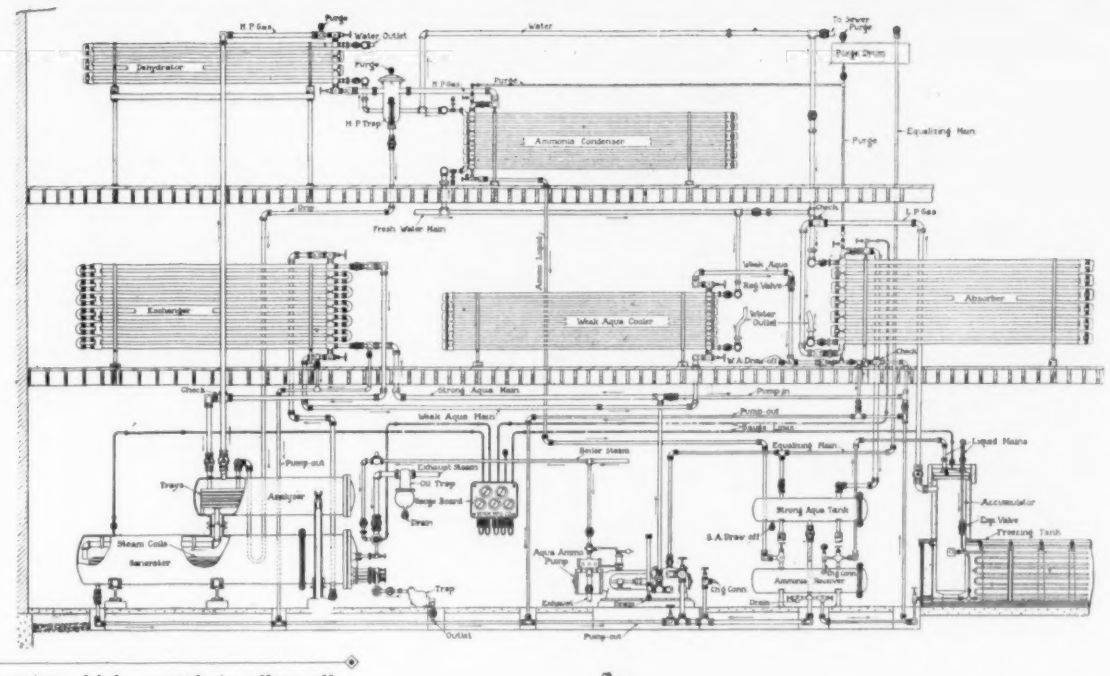
The liquor leaving the generator is weak and hot. If this liquor is permitted to enter the absorber as hot liquor, it will warm the absorber and more cooling water will be required there in order to produce the correct temperature for absorption of the ammonia gases. The heat exchanger is placed between the absorber and the generator to overcome the trouble just explained.

The function of the heat exchanger is to remove the heat from the hot, weak liquor as it leaves the generator and put this heat into the cold, strong liquor before it enters the generator. This prevents the heat leaving the generator where it is needed and it prevents this heat doing harm in the absorber.

The heat contained in hot, weak liquor leaving the generator is removed and placed into the cold, strong liquor leaving absorber, raising its temperature before it enters the generator. The heat exchanger produces a great saving of heat in the generator and of cooling water required in the absorber.

Heat exchanger form. The heat exchanger is usually built in the form of a double pipe condenser. The hot liquor enters the inside pipe at one end and flows in one direction. The cold liquor enters the opposite end of the outside pipe and flows in the opposite direction. The liquids flow in opposite directions so that the counterflow principle is used and the highest rate of heat transfer is used. The heat exchanger may be located in any convenient position or location.

General Layout of Absorption System of Refrigeration



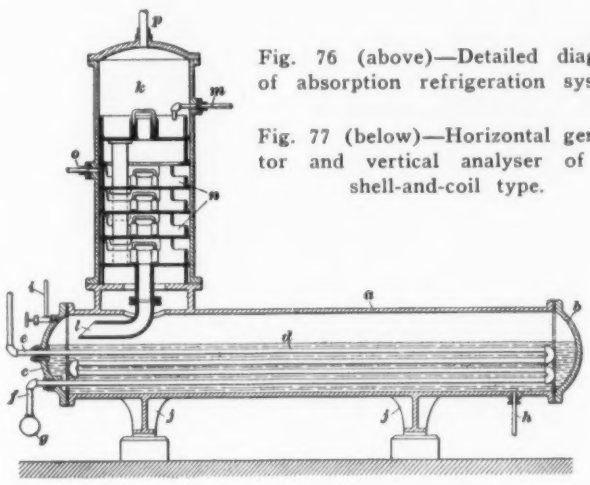


Fig. 76 (above)—Detailed diagram of absorption refrigeration system.

Fig. 77 (below)—Horizontal generator and vertical analyser of the shell-and-coil type.

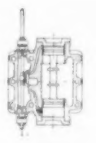
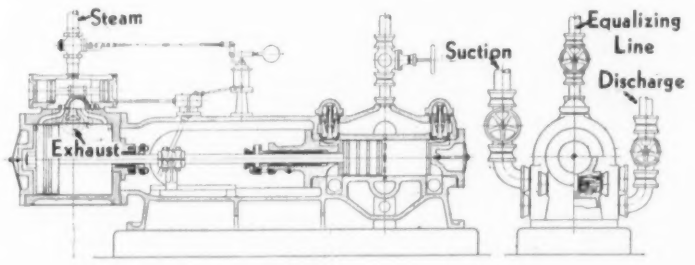


Fig. 78—Diagram of steam-driven strong-liquor pump. At left is side view of end section. Any type of pump made of non-corrosive materials will be satisfactory for this function.



Heat Exchanger

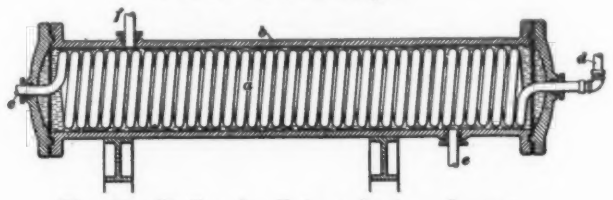
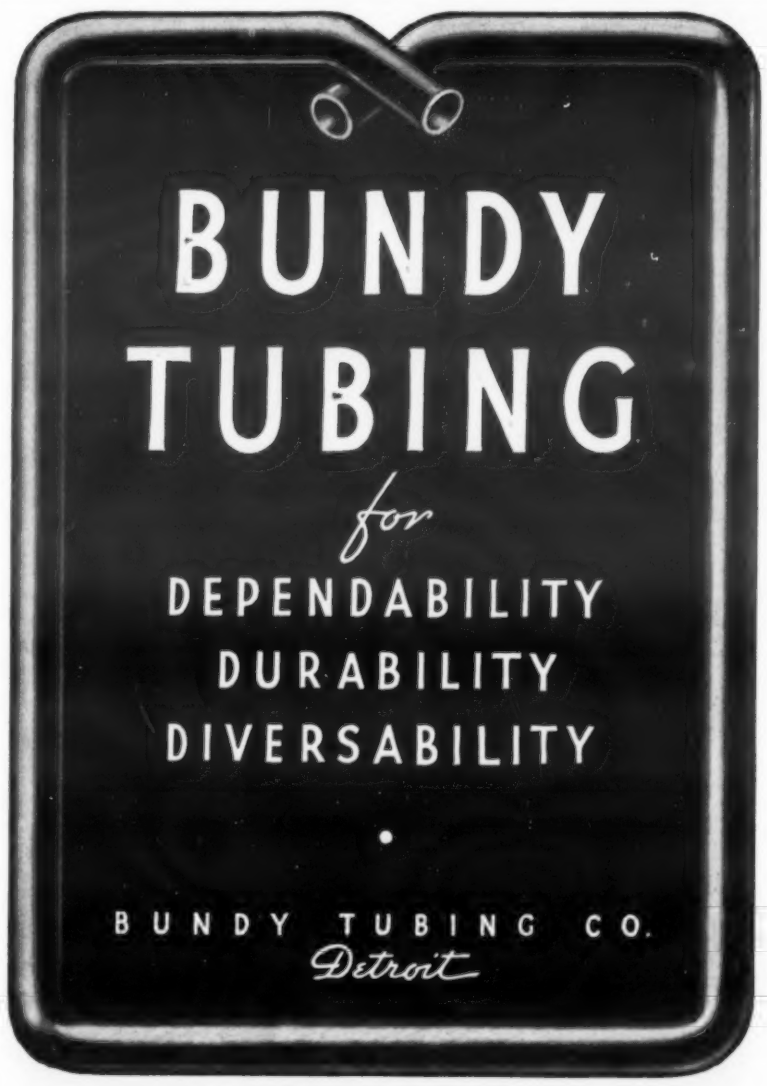


Fig. 79—Shell-and-coil type heat exchanger.

Table 10—Heat of Absorption of Ammonia in Water

Ammonia in poor liquor per cent	Ammonia in rich liquor per cent	Heat of absorption of one pound of ammonia in B.t.u.'s	Pounds of rich liquor for each pound of active ammonia
10	25	812	6.0
10	36	828	3.45
12	35.5	828	3.74
14	25	854	7.8
15	35	811	4.25
17	28.75	840	7.0
20	25	840	16.0
20	33	819	6.1
20	40	795	4.0

Table 11—Solubility of Ammonia in Water

Lbs. per sq. in. Absolute	—32° F.— Lbs. NH_3 per lb. Water	Gas Vol.	—68° F.— Lbs. NH_3 per lb. Water	Gas Vol.	—104° F.— Lbs. NH_3 per lb. Water	Gas Vol.	—212° F.— Lbs. NH_3 per lb. Water	Gas Vol.
14.67	0.899	1180	0.518	683	0.348	445	0.074	97
15.44	0.937	1231	0.535	703	0.349	458	0.078	102
16.41	0.980	1287	0.556	730	0.363	476	0.083	109
17.37	1.029	1351	0.574	754	0.378	496	0.088	115
18.34	1.077	1414	0.594	781	0.391	511	0.092	120
19.80	1.126	1478	0.613	805	0.404	531	0.096	126
20.27	1.177	1546	0.632	830	0.414	543	0.101	132
21.23	1.236	1615	0.651	855	0.425	558	0.106	139
22.19	1.283	1685	0.669	878	0.434	570	0.110	140
23.16	1.336	1754	0.685	894	0.445	584	0.115	151
24.13	1.388	1822	0.704	924	0.454	596	0.120	157
25.09	1.442	1894	0.722	948	0.463	609	0.125	164
26.06	1.495	1963	0.741	973	0.472	619	0.130	170
27.02	1.549	2034	0.761	999	0.479	629	0.135	177
27.99	1.603	2105	0.780	1023	0.486	638	.....	...
28.95	1.656	2175	0.801	1052	0.493	647	.....	...
30.88	1.758	2309	0.842	1106	0.511	671	.....	...
32.81	1.861	2444	0.881	1157	0.530	696	.....	...
34.74	1.966	2382	0.919	1207	0.547	718	.....	...
36.67	2.020	2718	0.953	1254	0.565	742	.....	...
38.60	.....	....	0.992	1302	0.579	764	.....	...

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